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REPORT ON
PRESENT AND ANTICIPATED AGRICULTURAL CONDITIONS

BIG SUNFLOWER RIVER PROJECT
YAZOO RIVER BASIN, MISSISSIPPI
MISSISSIPPI RIVER & TRIBUTARIES PROJECT REVIEW



PREPARED BY THE
U. S. DEPARTMENT OF AGRICULTURE FOR THE
MISSISSIPPI RIVER COMMISSION

SOIL CONSERVATION SERVICE
JACKSON, MISSISSIPPI
JANUARY, 1958

REQUEST FOR STUDY

Specific request to initiate this particular project area study was made March 6, 1956, as noted in General Memorandum No. 1 issued by the Field Advisory Committee on the same date. The basis for study was agreed upon as set forth in project study statement dated August 2, 1957.

AGENCY PARTICIPATION AND RESPONSIBILITIES

A U. S. Department of Agriculture memorandum of understanding between the Soil Conservation Service, U. S. Forest Service and Agricultural Research Service relating to interagency coordination of programs in Watersheds was consummated February 2, 1956. This memorandum provided for the organization of a Field Advisory Committee consisting of members of the above agencies with the Soil Conservation Service representative as chairman. Responsibilities of each agency were outlined by this Field Advisory Committee and incorporated in Mississippi River & Tributary Project Study General Memorandum Number 1.

The Soil Conservation Service has primary responsibility in classifying the soils of the area in accordance with an established legend. It has estimated land use and cropping patterns, extent and cost of land use conversions, extent and cost of farm and group drainage systems, extent and cost of farm irrigation systems for row crop and pasture lands.

The Agricultural Research Service has primary responsibility for developing field crop and livestock commodity price data, production cost for field crops and livestock enterprises, interest rates for capitalization, amortization, and discounting; and has assisted the Soil Conservation Service in the preparation of basic yield tables of field crops and pastures and in overall economic procedures.

All woodland yields, values and costs were developed by the U. S. Forest Service. The extent and location of dedicated woodland and other woodland areas not subject to land conversion were determined by the U. S. Forest Service.

Additional material and information required to make reliable estimates in this project study were obtained from the Mississippi State Extension Service, Experiment Station, SCD Commissioners and other individuals most familiar with the agricultural conditions and problems in the area.

METHOD OF COMPUTING AGRICULTURAL VALUES CREDITABLE TO PROJECT

Information and data presented in this report are intended to portray three different conditions with respect to land use, cropping patterns, crop yields, etc.-- (1) existing conditions, (2) future conditions without authorized or proposed project, (3) future conditions with both authorized and proposed project assumed in place. Area 1 was studied in detail by soil mapping units whereas Areas 2 through 7 were prepared on a reconnaissance basis using summary tables only.

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Agricultural benefits creditable to the proposed project will be the difference between the future net return with project and future net return without project. Associated costs in the future with project conditions should be deducted from gross benefits to arrive at net return to the project.

LIMITS OF APPLICATION OF ESTIMATES

The estimates cover an appraisal of the agricultural values and costs that can be expected as a result of agricultural drainage in association with installation of the proposed project works; however, the data includes no estimates of flood damage reduction, its value or costs through the land use and cropping pattern estimates reflect the flood protection that would be afforded by the proposed project works. Average flood free yield estimates have been used throughout the study so that they can be used as a basis for calculation by the Corps of Engineers based on its own hydrologic study.

The limits of project effectiveness established by the Corps of Engineers on the basis of engineering studies were accepted as the basis for compilation of agricultural data. All soils of such characteristics as to not require drainage have been eliminated from drainage evaluations. However, no attempt has been made by the Department of Agriculture to designate areas, within the limit of project effectiveness provided by the Corps, which, because of elevation might be drained without the project and hence not properly credited as benefiting from the project. Further engineering studies by the Corps may reveal the desirability of eliminating some acreages of that type from the computations contained herein. The Department of Agriculture does not have responsibility for that phase of the study.

GENERAL OVERALL DESCRIPTION OF THE PROJECT

Location and Size

The location of the seven study areas is confined to the central western portion of the Yazoo-Mississippi alluvial floodplain and lies between the Mississippi River Levee on the west and the Yazoo River on the east to a point north of Belzoni, Mississippi; the eastern boundary then follows the proposed upper auxiliary channel to Swan Lake, thence along the watershed divide between the Sunflower, Tallahatchie-Coldwater Rivers to a point south of Moon Lake in Coahoma County to its point of contact with the Mississippi River Levee. It extends south to the 97.8 MSL contour.

Within the limits there are approximately 2,675,000 acres. There are approximately 275,366 in the areas studied of which 102,546 acres were studied in detail with the remaining 172,820 acres studied on a reconnaissance basis.

Authorized Works and Protection Afforded

The Flood Control Act of 1944, as amended provides for additional

protection to the Yazoo Basin from the Big Sunflower River and its tributaries. The authorized project consists largely of channel improvement and capacities based upon the Cypress Creek formula using a value of $C = 50$ on 666.6 miles of the Big Sunflower River and its tributaries. As of July 1, 1957, 90.5 miles of this channel improvement work has been completed and approximately 100 miles was under construction. The project includes channel improvement works on the Big Sunflower River, Hill Brake-Mill Creek Canal, Hushpuckena River and Quiver River and their tributaries, and Bogue Phalia, Ditchlow Bayou, Little Sunflower River, Deer Creek and Steele Bayou. For the purpose of this study, it is assumed that the authorized project is not in operation even though a part of it has been completed and, no doubt, has caused a reduction in stage and frequency of floods which in turn has probably caused some woodland to be cleared and put in row crops and pasture.

Proposed Works of Improvement

The proposed works of improvement consists of further enlargement on the same 666.6 miles of channel on the Big Sunflower River and its tributaries as improved in the authorized project. This enlargement is based on a value of $C = 50$, using the Cypress Creek formula.

What The Study Involves

This study consists of an agricultural appraisal and economic evaluation of agricultural development that will likely occur as a result of the planned works of improvement, and the agricultural benefits that will accrue due to increased farm and group drainage and land conversions made possible by construction of these improvements in the following seven areas:

1. Areas Studied in Detail
 - (a) Area 1, Steele Bayou
2. Areas Studied on a Reconnaissance Basis
 - (a) Area 2, Lower Sunflower River below Quiver River
 - (b) Area 3, Middle Sunflower River - Quiver River to Hushpuckena River
 - (c) Area 4, Upper Sunflower River above Hushpuckena River
 - (d) Area 5, Bogue Phalia
 - (e) Area 6, Quiver River
 - (f) Area 7, Hushpuckena River

Dominant Soils and Land Use

There is a fairly wide range of alluvial soils in the Big Sunflower River Basin. The characteristics of the stream, both old and new, have contributed largely to this range in soil condition.

Generally, the soils that are adapted to a wider range of plants are located on the natural levees of the streams, lakes, and bayous. These soils usually slope away from the streams, and have fairly good surface and internal drainage and are usually of sandy loam or silt loam texture. It is on these soils that most of the cotton and corn is grown.

Away from the natural levee and in some cases adjacent to the streams, the topography is more nearly level and the soils become poorer drained and heavier textured. Soil management is more difficult on these heavy soils and, as a consequence, the land use pattern changes. There is a higher percentage of land in grasses and legumes, small grain and soybeans. At the present time only a small percentage is grown in rice. Most of the present woodland is on the heavy soils.

Yields

Present field crop and pasture yields used in project evaluation are estimates based upon existing conditions with an average level of management. Existing conditions reflect present drainage, irrigation and technology.

Future yields of all crops reflect the influence of improved drainage conditions, improved technology, supplementary irrigation and a correspondingly higher level of management.

The yields shown in all zones are for flood-free years. The difference in yields between future conditions without and with the proposed project represents the increases expected through improved drainage.

Present forest inventories were determined to reflect current woodland values on an acre basis. Yields used in this report are the results of a weighted average of the levels of management on an acreage basis which it is anticipated that the landowners would apply. Deferred yields have been appropriately discounted. Board foot and cubic foot units of production of wood products per acre are not shown in Tables II and III due to complexity of computations. For simplicity the yield has been consolidated into a per acre value of production.

Prices and Associated Costs

Projected prices as outlined in Mississippi River & Tributaries Project Study General Memorandum Number 6 (revised) for Mississippi were used in the evaluation of field crops and livestock enterprises. These projections represent the long-term levels of prices which can reasonably be expected to prevail with production and requirements in balance under competitive conditions and under assumptions of a relatively high employment level, a trend toward peace, continued population and economic growth, and a stable general price level.

Woodland production values are based on average 1955 prices for forest products at the mill yard or railroad siding. Nineteen Fifty-five prices are used since they appear to be realistic price projections for future conditions. The production values shown are present annual equivalent values of deferred incomes at a discount rate of 5 percent. Allowance is made for different levels of prices obtainable reflecting quality of the forest crop at different levels of management.

Crop Production Costs

Average costs for crop and livestock enterprises were developed from

studies of large and small farms in the Mississippi Delta. The costs for each crop and livestock enterprise includes all preharvest, harvest, overhead and management charges required to obtain yields used in the project analysis. Some production costs are expected to vary directly with yields. The cost of picking cotton by hand is an example of this type of cost. Some costs vary with yield, but have a fixed minimum charge, as is usually the case with machine harvest of cotton. In such cases a minimum fixed charge was assessed and the rest considered as varying directly with yield. Still other costs such as land preparation, as an average, are constant. All costs were treated as either fixed or variable in accordance with principles illustrated in the preceding examples. These costs are based on a projection of prices paid by farmers which are approximately 96 percent of the 1955 level of costs incurred by farmers.

Moisture deficiencies during the growing season have resulted in the use of supplemental irrigation of cotton to some extent on the better drained soils within the past few years. Supplemental irrigation of other crops has been of minor importance. It is anticipated that there will be a steady increase in supplemental irrigation on cotton and soybeans and to a lesser degree on other crops under future with or without project conditions.

Operation and maintenance of the supplemental irrigation system was included as a preharvest cost. The initial cost, which was amortized over a 15-year period at 5 percent, was included in overhead. Costs were based on various combinations of surface and sprinkler irrigation systems according to soil mapping units.

Annual installation and maintenance cost on pastures was included as a preharvest cost. The initial pasture installation cost was amortized over a 50-year period at 5 percent.

Crop production costs were obtained by soil mapping units on Area 1, which was studied in detail, and the summaries of all soils calculated. On Areas 2, 3, 4, 5, 6 and 7, which were studied on a reconnaissance basis, costs were obtained for summaries all soils only.

Production costs for forest products are based on costs prevailing in and adjacent to the locality during 1955. These costs are estimated to be at a reasonable level for projection to future conditions. Costs cover conversion of standing timber to raw wood products at mill yard or rail siding including a return to management; a cultural and crop management cost consisting of an amortized annual charge for timber stand improvement works; an allowance for management and supervision by owners, their representatives and foresters; and forest protection costs. Conversion costs per acre have been discounted to present worth in the same manner as production values.

Net Crop Production Returns

The analysis by major crop and livestock enterprise indicate that the gross value of production exceeds production costs for each enterprise for all of the seven areas and, in the case of Area 1, which was studied

in detail for each soil unit. Positive net returns to land result. Direct comparison of these net returns to land between enterprises to determine feasibility of each is not valid. Associated costs directly chargeable to a specific enterprise affects its relative net value. Returns to management will also be considered by the landowner in making a choice of enterprises. An increase in the net return to land with project, as compared to without project conditions, is indicated for all enterprises except woodland. Net return to woodland, per acre, is not expected to be affected directly although such returns will be affected indirectly through the anticipated clearing of certain acreages and conversion to a more intensive use due to the influence of project works of improvement.

Land Use Conversions and Costs

Table VI shows the land use conversions that are expected to occur in the future as a result of project works of improvement in the B-2 Zone and includes the cost of clearing and smoothing the new land for crops and pasture. The costs of clearing and land smoothing are prevailing rates within the project and are estimated to be reasonable for projections to future conditions.

Some of the woodland is expected to be converted to cropland in the future with or without the project. A smaller acreage is expected to be converted from woodland to pasture. The net return for all row crops and pasture was greater than the net return from woodland. This increase in net return will tend to accelerate the conversion of woodland to other crops in both zones within the project.

All capital costs of conversion have been amortized at 5 percent for a period of 50 years. The amortized cost of pasture installation and pasture maintenance on the additional pasture established due to the project is included in cost of production.

SUMMARY

The installation of authorized and proposed works of improvement will provide adequate outlets for farm and group drainage on approximately 252,000 acres of land. The upper limit of the B-1 Zone will receive full protection from flooding, and the remainder of the B-1 Zone and all the B-2 Zone will receive partial protection.

It is anticipated that as a result of works of improvement the areas now subject to flooding will be reduced materially and that agricultural development will proceed fairly rapidly within the seven areas.

As a result of agricultural development within the proposed project area, there will be an annual gross benefit of \$511,449; annual associated cost of \$226,713; with an annual net benefit to the project of \$284,736.

INDIVIDUAL AREA IN THE BIG SUNFLOWER RIVER PROJECT STUDIED ON A DETAIL BASIS

AREA 1, STEELE BAYOU

DESCRIPTION OF THE AREA

Area 1, Steele Bayou, of the Big Sunflower River Project is located in the southern part of Washington County and the northern part of Sharkey and Issaquena Counties. It is bounded on the west by the Mississippi River Levee and Deer Creek on the east. It comprises 87,899 acres of land that lies between the maximum limits of overflow without either the authorized or proposed projects in place and the three-year frequency overflow with both projects in place (B Zone); 14,647 acres is below the three-year frequency with projects in place (C Zone). The B Zone is broken down further into a B-1 Zone which comprises 14,116 acres of land lying between the upper limits of overflow and the five-year frequency flood line with the authorized project assumed in place. The B-2 Zone contains 73,783 acres of land between the lower limits of the B-1 Zone and the upper limits of the C Zone. All of the benefits in the B-1 Zone and a part of the B-2 Zone are derived from the authorized project. The remaining benefits in the B-2 Zone are derived from the proposed project. Though no drainage benefits accrue to the proposed project in the B-1 Zone, it was studied and included in this report for the purpose of flood damage appraisal.

In this area the A Zone - area above overflow - was not studied, since it was assumed that all drainage benefits in this Zone would be attributable to the authorized project.

SOILS AND TOPOGRAPHY

Within the B-1 Zone 90 percent of the soils are nearly level, very poorly drained heavy clays, and in the B-2 Zone 96 percent of the soils are of this same type. Only 1 percent of the land in both the B-1 and B-2 Zones are gently sloping, well drained, sandy loam soils. In both zones 3 percent is classified as level to gently sloping, somewhat poorly drained silt loam and clay loam soils mixed. Most of the soils are subject to overflow.

The C Zone consists of heavy clay soils on 70 percent of the land. Most of the remainder is water and swamp area.

PROBLEMS WITHIN THE PROJECT

Much of the area is subject to frequent flooding due primarily to backwater flooding. Most of the low-lying, heavy clay soils and much of the depressional areas associated with better drained soils cannot be utilized properly due to poor drainage and floodwaters remaining on the land until late spring; these conditions are due mainly to inadequate outlets for existing group drainage facilities.

EXISTING WORKS OF IMPROVEMENT

Existing works of improvement consist of 48.1 miles of channel improvement on the lower part of Steele Bayou. However, for the purpose of this report it was assumed that no project benefits had been realized from this partially completed work of improvement. The Black Bayou and Riverside Drainage Districts have provided group drainage facilities for nearly all of the area. However, these facilities do not function properly due to inadequate capacity, poor maintenance and inadequate outlets.

PROPOSED PLAN OF IMPROVEMENT

The proposed plan of improvement provides for the enlargement of Steele Bayou, Black Bayou and the lower part of Main Canal from a capacity of $C = 35$ as provided by the authorized project to a capacity of $C = 50$ using a value based upon the Cypress Creek formula.

EFFECTS OF PROPOSED PLAN FOR IMPROVEMENT AND DEVELOPMENT OF AREA

The authorized project will reduce the frequency of flooding, and provide adequate outlets for group drainage on all of the B-1 Zone and 20 percent of the B-2 Zone. The proposed project is expected to provide partial protection from flooding, and adequate outlets for group drainage on the remaining 80 percent of the B-2 Zone.

This protection and improvement in the area is expected to increase the level of management and expand the development of wooded acres for row crops and pastures.

Land Use

At present approximately 49 percent of the project area is open land. The remaining 51 percent is woodland. Over 88 percent of the woodland in the area is found on soil mapping unit 1.

There is a small amount of land clearing going on in the project area at present. This has been brought about partially by the channel improvement work on the authorized project that has already been completed and is in the process of being completed. Also expanding rice production has caused some land conversion. It is anticipated that 3,919 acres of land will be cleared in the future without the projects in B-1, B-2 and C Zones. With both the authorized and the proposed projects in effect, 12,479 acres of woodland is expected to be cleared and put into crops. Most of the land clearing is expected to occur in soil mapping unit 1. This is the soil that will benefit most from additional and improved drainage facilities.

Approximately $7\frac{1}{2}$ percent of the woodland in the project area is dedicated to forest use. Most of the dedicated woodland is in state parks, experiment station woodland and in holdings belonging to hardwood timber companies and hunting clubs. Most of the dedicated woodland is under a high level of management.

The non-dedicated woodland is in very poor condition. Fire and past cutting practices have been causing the generally poor present conditions of the woodlands. More than 50 percent of the woodlands burned during the 1952-54 fires and over 90 percent of it burned during the past 15 years. Less than 10 percent of the woodland has been uncut during the past fifteen years. However, despite the low saw timber volumes, there is a good growth rate due to a good distribution of pole size trees.

Farm Drainage Systems and Cost

Table VII consists of estimates of amounts and cost of farm drainage systems by soil mapping units in the B-2 Zone that will be constructed after satisfactory group drainage systems and adequate major outlets are developed. These estimates anticipate that 77 percent of gross open land will be drained and used for crops and pasture production with the project in effect. Approximately 13 percent will remain as wet land due to lack of farmer participation. The remaining 10 percent will be utilized in roads, farmsteads, etc. It is estimated that approximately 25 percent of the present open land is adequately drained.

Cost included installation (construction, engineering and contingency) required for farm drainage systems for a satisfactory removal of surface water to obtain the best crop production. Requirements vary by soil mapping units and land use. Drainage requirements for rotated pasture land were the same as cropland on similar soil units. Cost includes all ditching and appurtenant structural needs for systems to serve an average of one square mile. Estimates are based on standard design data for conditions involved.

Capital costs of farm drainage systems have been amortized for a useful life of 10 years at 5 percent. Life expectancy of farm drainage systems is influenced by soil mapping units, cropping patterns, which are largely determined by soil units, and the stability of agriculture in the study area. Maintenance cost, varying with soil mapping units and land use, have been added to the amortized annual equivalent of installation cost to derive the total annual cost of farm drainage systems. Farm drainage system costs were determined for the B-2 Zone only. Present costs of farm drainage systems are expected to prevail under future with project conditions.

Group Drainage Systems and Costs

Group drainage systems and costs were established on a project wide basis in Area 1. Any group drainage ditches running through Zone C were for the purpose of tying-in Zone B with major drainage outlets proposed in the project.

Approximately 130 miles of group drainage ditches are now in place. Lowering the gradient of approximately 119 miles of ditches will be required to give adequate group facilities for farm drainage systems anticipated with the proposed works of improvement in place.

Table VIII itemized the cost required to install and maintain intermediate group drainage facilities and appurtenant structures for the

B-1 and B-2 Zones, and prorates the cost in the B-2 Zone on the basis of total area in each zone. Installation costs have been amortized for a useful life period of 20 years at $3\frac{1}{2}$ percent. This useful life is based on known life of comparable ditches in this immediate vicinity. Maintenance costs have been added to this amount to derive the total annual cost of group drainage systems. Present cost of group drainage systems are expected to prevail under future with project conditions.

BENEFITS AND ASSOCIATED COSTS

Net enhancement benefits which will accrue from the project works of improvement will be improvements in farm and group drainage systems and improved management and better use of technological advancement as a result of improved drainage.

Annual equivalent values of net income from woodland have been determined. These are actual present net income values plus the present worth of deferred net income that would result from the application of better management in the future. No increase in forest income due to the project is expected.

Table IX summarizes for the B-2 Zone-- (1) net annual return and benefits from Table V; (2) annual costs of making land conversions from Table VI; (3) annual costs in installing and maintaining farm and group drainage systems, Tables VII and VIII.

Gross project benefits have been discounted to take into account an anticipated time lag in accrual of increasing benefits after project installation. The time lag used was 20 years. A 50-year period of analysis was used. A projected private interest rate of 5 percent was used in arriving at discount factors.

Annual installation and maintenance costs of farm drainage systems and land conversions have been discounted to take into account the following considerations: (1) interest rate 5%, (2) time lag 15 years, and (3) period of analysis 50 years.

Annual installation and maintenance costs of group drainage systems have been discounted to take into account the following considerations: (1) interest rate $3\frac{1}{2}$ %, (2) time lag 10 years, and (3) period of analysis 50 years.

The lags described are based upon local experience and present trends in this and other similar areas under conditions which parallel those being evaluated. Instantaneous installation of the project is assumed for discount purposes and is considered to be year zero as a reference point for all associated measure costs and benefits contingent upon project installation. Progress towards realization of full benefits from proposed project works of improvement is expected to be incremental and as follows:

1. Complete installation of group drainage facilities is expected to take 10 years from the last year of project installation.

2. Land conversions and complete installation of farm drainage systems is expected to occur 5 years after installation of group drainage systems or 15 years after project installation.

3. Realization of maximum estimated yields and full benefits is expected to require a 5-year conservation buildup period after land conversions are made and farm drainage systems installed or a total of 20 years after project installation.

A proportionate part of all associated costs and of project benefits is assumed to accrue the first year after instantaneous project installation, to increase uniformly for the period of lag, and to level off at the end of the period of lag and continue at a constant rate to the end of the project life of 50 years.

It is estimated that 80 percent of the benefit in the B-2 Zone is derived from the proposed project. This estimate is based upon field investigations that included a study of land use, slope, soil types, cropping patterns, etc.

SUMMARY

The installation of the authorized and proposed works of improvement will reduce the frequency of flooding on approximately 102,546 acres of land. Of this area, 59,026 acres will receive protection from the proposed project, and 43,520 acres will receive protection from the authorized project.

In addition, adequate outlets for farm and group drainage systems will be provided for the entire 102,546 acres to be protected. The proposed project alone will provide farm and group drainage facilities for 59,026 acres of land.

It is anticipated that as a result of works of improvement the areas subject to flooding will be reduced materially and that agricultural development will proceed at a fairly rapid rate.

As a result of agricultural development expected to take place in the project area due to additional drainage facilities, there will be an annual gross benefit of \$244,956; an annual associated cost of \$87,138; with an annual net benefit to project of \$157,818.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1
 State: Mississippi

TABLE I
 Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|-----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 6,390 | | 4,963 | | 11,353 |
| 1U | | 130 | | 1,183 | | 1,313 |
| 2 | | 358 | | 50 | | 408 |
| 2SU | | 90 | | 115 | | 205 |
| 4S | | 348 | | 261 | | 609 |
| 5 | | 148 | | 0 | | 148 |
| 6S | | 40 | | 10 | | 50 |
| 14 | | 0 | | 30 | | 30 |
| Sub-total - All Soils | | 7,504 | | 6,612 | | 14,116 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|-----------------------|--------|--------|--------|
| 1 | 39,413 | 31,078 | 70,491 |
| 2 | 643 | 186 | 829 |
| 2SU | 90 | 230 | 320 |
| 4S | 414 | 90 | 504 |
| 5 | 45 | 0 | 45 |
| 6S | 520 | 610 | 1,130 |
| 14 | 0 | 334 | 334 |
| Water | | | 130 |
| Sub-total - All Soils | 41,125 | 32,528 | 73,783 |

Zone C - Zone of no Project Benefit

| | | | |
|----------------------|-------|--------|--------|
| 1 | 1,178 | 6,171 | 7,349 |
| 1U | 190 | 2,699 | 2,889 |
| 3U | 10 | 20 | 30 |
| 4S | 0 | 40 | 40 |
| 6S | 0 | 70 | 70 |
| 14 | 0 | 4,044 | 4,044 |
| Water | | | 225 |
| Subtotal - All Soils | 1,378 | 13,044 | 14,647 |

| | | | |
|-----------------|--------|--------|---------|
| Total - Project | 50,017 | 52,174 | 102,546 |
|-----------------|--------|--------|---------|

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) : | (2) | : | (3) | : | (4) | (5) | (6) |
|--------|----------------------|---|--------|---|------------|----------|---------|
| Soil : | Land Use and Crop | : | Acres | : | Production | | |
| Unit : | Distribution | : | | : | Unit | Per Acre | Total |
| : | : | : | 2/ | : | : | 3/ | : |
| All : | Open Land | : | 7,504 | : | : | : | : |
| : | Crops | : | 6,753 | : | : | : | : |
| : | Cotton | : | 1,451 | : | Lbs. Lint | 341 | 494,210 |
| : | Corn | : | 390 | : | Bu. | 17 | 6,564 |
| : | Soybeans | : | 2,137 | : | Bu. | 14 | 30,914 |
| : | Soybeans (Fol.oats) | : | (218) | : | Bu. | 9 | 1,938 |
| : | Small Grains | : | 1,355 | : | Bu. | 27 | 36,856 |
| : | Small Grains(Grazed) | : | (16) | : | Lbs. Beef | 79 | 1,260 |
| : | Rice | : | 575 | : | Cwt. | 26 | 14,950 |
| : | Idle | : | 312 | : | : | : | : |
| : | Pasture | : | 533 | : | Lbs. Beef | 156 | 83,410 |
| : | Other 1/ | : | 751 | : | : | : | : |
| : | Forest Land | : | 5,922 | : | : | : | : |
| : | : | : | 4/ | : | : | : | : |
| : | Total | : | 13,426 | : | : | : | : |
| : | : | : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Total does not include 690 acres of dedicated woodland area.

Basin: Yazoo
Project: Big Sunflower
Reach: Area 1, Zone B-1
State: Mississippi

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|--------------------------------|------------|-------|------------|----------|---------------|---------|---------------|---------|----------|
| Soil | Land Use and Crop Distribution | : Acres | : | iroduction | : | of Production | : | of Production | : | Net |
| Unit | : | : | Unit | :Per Acre | : Total | :Per Unit | : Total | :Per Acre | : Total | : Return |
| | | | | | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| All | Open Land | 2/ | : | 3/ | : | : | : | : | : | : |
| | Crops | 8,433 | : | : | : | : | : | : | : | : |
| | Cotton | 7,589 | : | : | : | : | : | : | : | : |
| | Corn | 2,049 | :lbs. | 479 | :981,980 | 0.318286 | 312,552 | 127.47 | 261,184 | 51,368 |
| | Soybeans | 371 | :Bu. | 21 | :7,792 | 1.45 | 11,299 | 23.34 | 8,660 | 2,639 |
| | Soybeans (Fol.oats): | 2,123 | :Bu. | 20 | :42,672 | 2.35 | 100,279 | 27.99 | 61,538 | 38,741 |
| | Small Grains | (1,141) | :Bu. | 13 | :14,955 | 2.35 | 35,145 | 23.84 | 27,199 | 7,946 |
| | Small Grains (grazed) | 1,782 | :Bu. | 28 | :50,662 | 0.956/ | 48,129 | 21.14 | 37,664 | 10,465 |
| | Idle | (19) | :lbs. | 89 | :1,690 | 0.1805 | 304 | 7.42 | 141 | 163 |
| | Pasture | 350 | : | : | : | : | : | : | : | : |
| | Other l/ | 914 | :lbs. | 184 | :168,090 | 0.1805 | 30,340 | 25.94 | 23,708 | 6,632 |
| | Forest Land | 844 | : | : | : | : | : | : | : | : |
| | | 1,918 | : | : | : | : | 9,801 | 2.66 | 5,101 | 4,700 |
| Total | | 7/ :10,351 | : | : | : | : | 547,849 | : | 425,195 | 122,654 |

11/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

27/ Calculated from columns 5 and 10, rounded to nearest cent.

7/ Total does not include 3,765 acres that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Area 1, Zone B-1

State: Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|-----------------------|---------|-----------|------------|-----------|----------|---------|----------|---------|---------|
| Soil | Land Use and Crop | Acres | | Production | | Value | | Cost | | Net |
| Unit | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Return |
| | | | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| All | Open Land | 2/ | | 3/ | | | | 5/ | | |
| | Crops | 10,351 | | | | | | | | |
| | Cotton | 9,316 | | | | | | | | |
| | Corn | 3,132 | Lbs. Lint | 547 | 1,714,500 | 0.31 | 545,702 | 142.68 | 446,864 | 98,838 |
| | Soybeans | 447 | Bu. | 28 | 12,506 | 1.45 | 18,133 | 28.20 | 12,606 | 5,527 |
| | Soybeans (Fcl.oats) | 2,511 | Bu. | 25 | 61,771 | 2.35 | 145,161 | 33.04 | 82,971 | 62,190 |
| | Small Grains | (1,267) | Bu. | 16 | 20,399 | 2.35 | 47,938 | 27.49 | 34,831 | 13,107 |
| | Small Grains (Grazed) | 1,732 | Bu. | 38 | 66,330 | 0.95 | 63,013 | 26.12 | 45,238 | 17,775 |
| | Idle | (25) | Lbs. Beef | 108 | 2,700 | 0.1805 | 487 | 9.48 | 237 | 250 |
| | Pasture | 187 | | | | | | | | |
| | Other | 1,307 | Lbs. Beef | 250 | 326,530 | 0.1805 | 58,937 | 35.01 | 45,757 | 13,180 |
| | | 1,035 | | | | | | | | |
| | Total | 7/ | | | | | | | | |
| | | 10,351 | | | | | 879,371 | | 668,504 | 210,867 |

11/ Farmsteads, farm roads, waste and non-agricultural.

2/parenthetical amounts are duplicated acreages.

2/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Total does not include 3,765 acres that will remain in woods.

MISSISSIPPI RIVER & PRELIMINARY STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

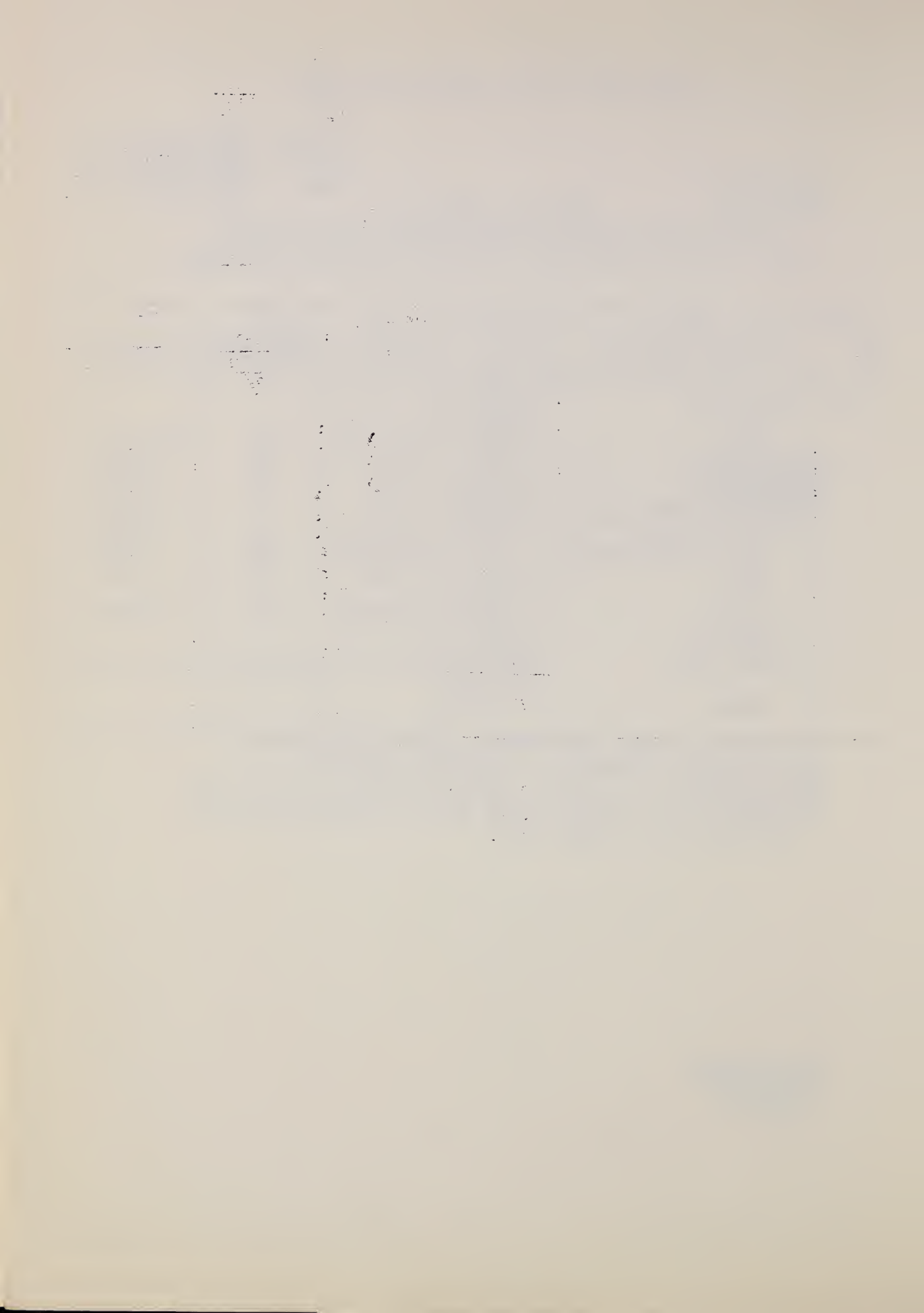
| (1) : | (2) : | (3) : | (4) : | (5) : | (6) : |
|--------|------------------------|-----------|-------------|-----------|-----------|
| Soil : | Land Use and Crop : | Acres : | Production | | |
| Unit : | Distribution : | Unit : | Per Acre : | Total : | |
| | | <u>2/</u> | | <u>3/</u> | |
| All : | Open Land : | 41,125 : | | | |
| | Crops : | 37,014 : | | | |
| | Cotton : | 6,863 : | Lbs. Lint: | 293 : | 2,009,320 |
| | Corn : | 2,196 : | Bu. : | 15 : | 32,040 |
| | Soybeans : | 11,286 : | Bu. : | 12 : | 140,734 |
| | Soybeans(Fol.oats) : | (1,133) : | Bu. : | 7 : | 8,283 |
| | Small Grains : | 7,669 : | Bu. : | 24 : | 187,032 |
| | Small Grains(Grazed) : | (29) : | Lbs. Beef : | 72 : | 2,100 |
| | Rice : | 3,547 : | Cwt. : | 25 : | 88,675 |
| | Idle : | 1,805 : | | | |
| | Pasture : | 3,648 : | Lbs.Beef : | 141 : | 515,910 |
| | Other <u>1/</u> : | 4,111 : | | | |
| | Forest Land : | 29,823 : | | | |
| | | <u>4/</u> | | | |
| | Total : | 70,948 : | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Total does not include 2,075 acres of dedicated woodland and 130 acres of water area.



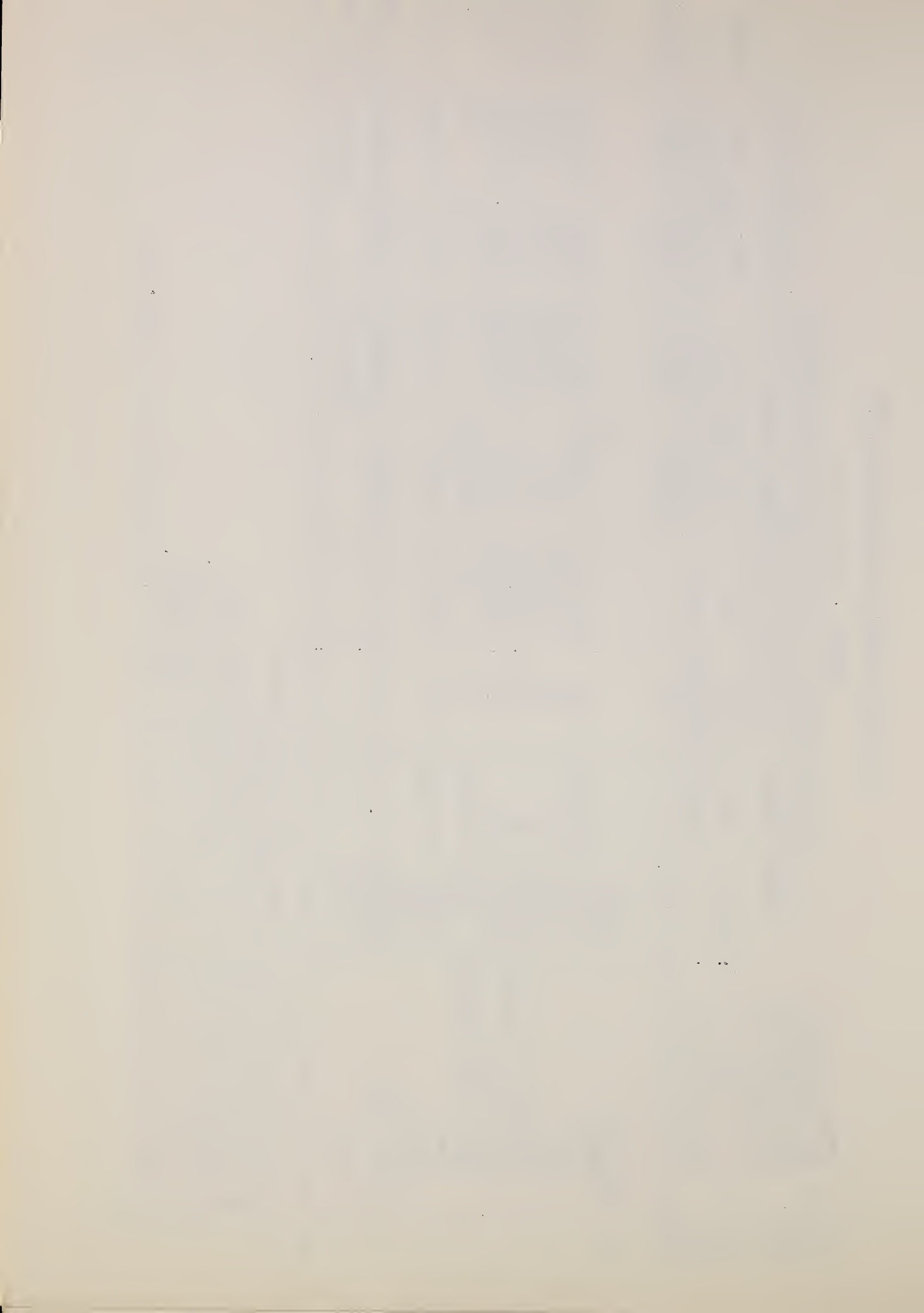
MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected Prices).

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|-----------------------|---------|-----------|-------------|-----------|-----------|---------------------|-----------|--------------------|-----------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of production | Per Acre | Cost of production | Return |
| Unit: | distribution | | | : Per Acre: | : Total | : Dollars | : Dollars | : Dollars | : Dollars | : Dollars |
| All | Open Land | 2/ | | 3/ | | | | 5/ | | |
| | Crops | 44,115 | | | | | | | | |
| | Cotton | 39,704 | | | | | | | | |
| | Corn | 8,510 | Lbs. Lint | 407 | 3,463,370 | 0.318286 | 1,102,343 | 113.37 | 964,764 | 137,579 |
| | Soybeans | 1,980 | Bu. | 19 | 37,666 | 1.45 | 54,616 | 22.15 | 43,876 | 10,740 |
| | Soybeans (Pol.Oats) | 11,430 | Bu. | 18 | 210,048 | 2.35 | 493,613 | 27.56 | 15,038 | 178,575 |
| | Small Grains | (6,509) | Bu. | 13 | 84,844 | 2.35 | 199,384 | 23.76 | 154,675 | 44,709 |
| | Small Grains (Grazed) | 10,799 | Bu. | 28 | 304,196 | 0.95 | 288,986 | 21.01 | 226,835 | 62,151 |
| | Idle | (36) | Lbs. Beef | 81 | 2,900 | 0.1805 | 523 | 6.50 | 234 | 289 |
| | Pasture | 1,934 | | | | | | | | |
| | Other 1/ | 5,051 | Lbs. Beef | 172 | 866,720 | 0.1805 | 156,442 | 24.09 | 121,699 | 34,743 |
| | Forest Land | 4,411 | | | | | | | | |
| | | 10,561 | | | | 5.11 | 53,967 | 2.66 | 28,093 | 25,874 |
| | Total | 7/ | | | | | | | | |
| | | 54,676 | | | | | 2,349,874 | | 1,855,214 | 494,660 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Calculated from columns 3 and 10; rounded to nearest cent.
- 6/ Composite value of veal calves and herd culls (beef cattle).
- 7/ Total does not include 18,977 acres that will remain in woods and 130 acres of water area.



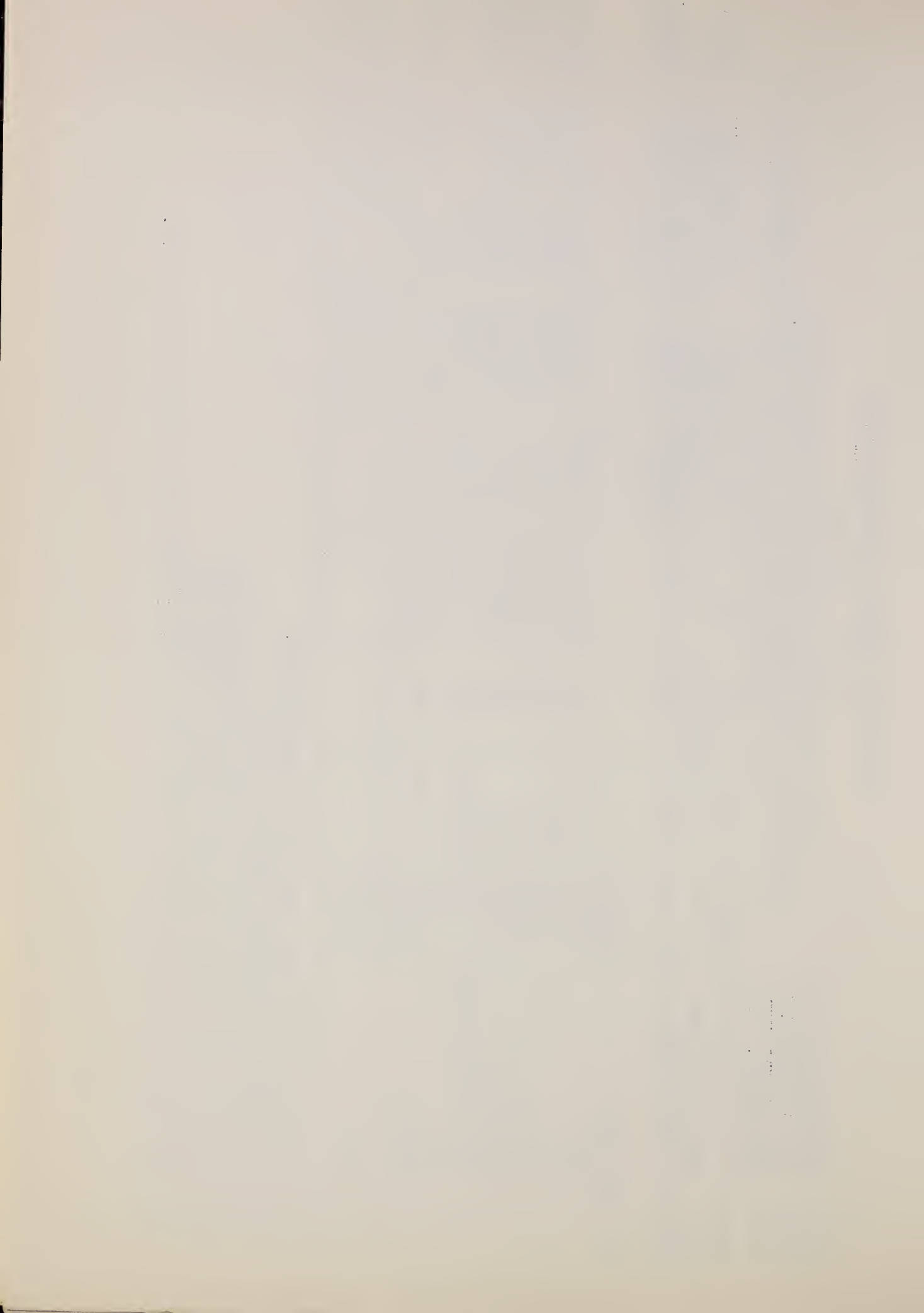
MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|----------------------|---------|-----------|-------------|-----------|-----------|---------------------|-----------|--------------------|----------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | : Per Acre: | | : Dollars | : Dollars | : Dollars | : Dollars | : Return |
| : | : | 2/ | : | 3/ | : | : | : | 5/ | : | : |
| All : | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | 54,676 | : | : | : | : | : | : | : | : |
| : | Cotton | 49,209 | : | : | : | : | : | : | : | : |
| : | Corn | 15,258 | Lbs. Lint | 502 | 7,664,720 | 0.318286 | 2,439,572 | 134.15 | 2,046,900 | 392,672 |
| : | Soybeans | 2,438 | Bu. | 27 | 65,214 | 1.45 | 94,560 | 27.47 | 66,976 | 27,584 |
| : | Soybeans (Fol.Oats) | 13,658 | Bu. | 24 | 330,326 | 2.35 | 776,265 | 32.71 | 446,800 | 329,465 |
| : | Small Grains | (7,174) | Bu. | 16 | 115,179 | 2.35 | 270,672 | 27.42 | 196,721 | 73,951 |
| : | Small Grains(Grazed) | 9,661 | Bu. | 38 | 368,466 | 0.95 | 350,043 | 26.04 | 251,577 | 98,466 |
| : | Idle | (59) | Lbs. Beef | 103 | 6,060 | 0.1805 | 1,093 | 8.90 | 525 | 568 |
| : | Pasture | 982 | : | : | : | : | : | : | : | : |
| : | Other 1/ | 7,211 | Lbs. Beef | 231 | 1,665,030 | 0.1805 | 300,538 | 32.69 | 235,730 | 64,808 |
| : | Total | 5,467 | : | : | : | : | : | : | : | : |
| : | | 7/ | : | : | : | : | : | : | : | : |
| : | | 54,676 | : | : | : | : | 4,232,743 | : | 3,245,229 | 987,514 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreage.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Calculated from columns 3 and 10; rounded to nearest cent.
- 6/ Composite value of veal calves and herd culls (beef cattle).
- 7/ Total does not include 18,977 acres that will remain in woods and 130 acres of water land.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone C
 State: Mississippi

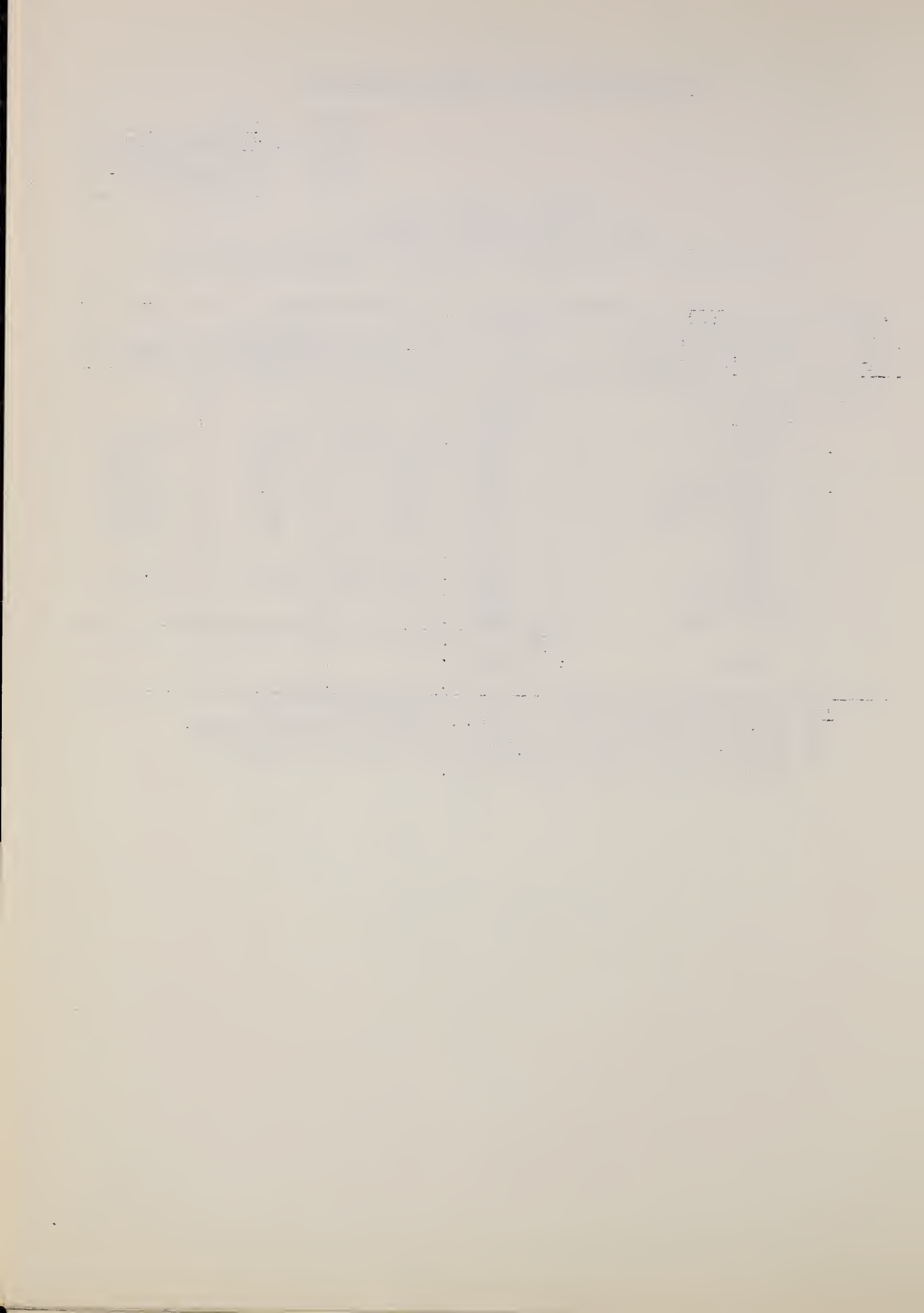
SUMMARY - TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|-------------------|-----------|------------|-----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | | | <u>2/</u> | |
| All | Open Land | 1,378 | | | |
| | Crops | 1,240 | | | |
| | Cotton | 123 | Lbs. Lint | 289 | 35,500 |
| | Corn | 62 | Bu. | 14 | 868 |
| | Soybeans | 562 | Bu. | 14 | 7,868 |
| | Small Grains... | 62 | Bu. | 24 | 1,488 |
| | Rice | 106 | Cwt. | 25 | 2,650 |
| | Idle | 123 | | | |
| | Pasture | 202 | Lbs. Beef | 154 | 31,110 |
| | Other <u>1/</u> | 138 | | | |
| | Forest Land | 509 | | | |
| | | <u>3/</u> | | | |
| | Total | 1,887 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6; rounded to nearest unit.

3/ Total does not include 12,535 acres that will remain in woods and 225 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 1, Zone C

State: Mississippi

SUMMARY - TABLE III C

(Zone of no project benefit) 2/

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|-------------------|-------|-----------|------------|--------|----------|---------------------|----------|--------------------|--------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | Per Acre | Total | Dollars | Dollars | Dollars | Total | Return |
| All | Open Land | | | 3/ | | | | 5/ | | |
| | Crops | | | | | | | | | |
| | Cotton | 1,887 | Lbs. Beef | 398 | 74,350 | 0.318286 | 23,665 | 111.33 | 20,818 | 2,847 |
| | Corn | 1,698 | Bu. | 17 | 1,388 | 1.45 | 2,012 | 20.73 | 1,741 | 271 |
| | Soybeans | 828 | Bu. | 17 | 14,208 | 2.35 | 33,390 | 26.55 | 21,982 | 11,408 |
| | Small Grains | 85 | Bu. | 26 | 2,252 | 0.95 | 2,139 | 20.14 | 1,712 | 427 |
| | Idle | 166 | | | | 6/ | | | | |
| | Pasture | 348 | Lbs. Beef | 166 | 57,890 | 0.1805 | 10,450 | 23.22 | 8,082 | 2,368 |
| | Other 1/ | 189 | | | | | | | | |
| | | 7/ | | | | | | | | |
| | Total | 1,887 | | | | | 71,656 | | 54,335 | 17,321 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "with project" and "without project" conditions; no Table IV C required.

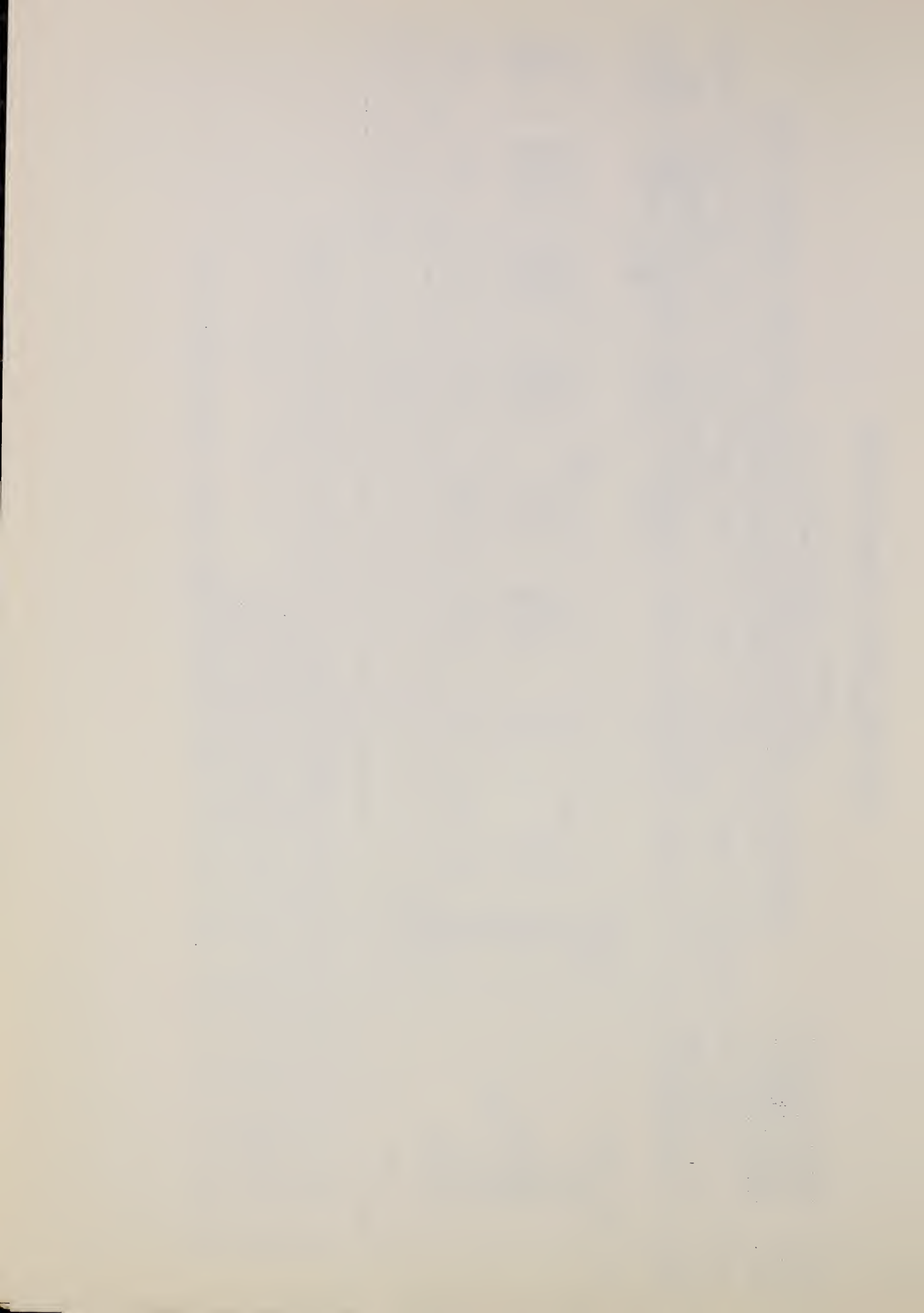
3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Total does not include 12,535 acres that will remain in woods and 225 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

T.BLE V

Basin: Yazoo
Project: Big Sunflower
Reach: Area 1
State: Mississippi

PROJECT I.E. SUMMARY BY SOIL MAPPING UNITS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|----------------|--------|-----------|---|---------|-----------|--|-----------|------------------------------------|
| Soil Unit | Acres | Gross | Future Without Project (Production in Dollars) | Net | Gross | Future With Project (Production in Dollars) | Net | Difference in Net Production |
| Zone B-2 and C | | | | | | | | |
| 1 | 53,951 | 2,172,460 | 1,724,136 | 449,324 | 3,998,270 | 3,071,553 | 926,717 | 477,393 |
| 1U | 325 | 11,486 | 8,766 | 2,720 | 11,486 | 8,766 | 2,720 | 0 |
| 2 | 754 | 65,356 | 48,880 | 16,476 | 83,874 | 62,346 | 21,528 | 5,052 |
| 2SU | 228 | 12,549 | 10,129 | 3,420 | 24,736 | 18,772 | 5,964 | 2,544 |
| 3U | 20 | 845 | 653 | 192 | 845 | 653 | 192 | 0 |
| 4S | 459 | 80,825 | 58,680 | 22,145 | 85,538 | 61,955 | 23,583 | 1,438 |
| 5 | 45 | 8,731 | 6,434 | 2,297 | 9,072 | 6,634 | 2,438 | 141 |
| 6S | 781 | 67,278 | 51,871 | 15,407 | 90,578 | 68,885 | 21,693 | 6,286 |
| Total | 56,563 | 2,421,530 | 1,909,549 | 511,981 | 4,304,399 | 3,299,564 | 1,004,835 | 492,854 |

1/ Total area of Zones B-2 and C reduced by 31,512 acres that will remain in woods and 355 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

TABLE VI
LAND CONVERSIONS WITH PROJECT

| (1) Type of Conversion <u>1/</u> | (2) Total amount | (3) Cost of clearing | (4) Cost of smoothing | (5) Cost of irrigation system | (6) Total cost |
|--|------------------------|-------------------------------|--------------------------------|--|----------------------|
| | Acres | Dollars | Dollars | Dollars | Dollars |
| <u>Per Acre</u> | | | | | |
| W to GC | xx | 55 | 12.50 | xx | 67.50 |
| W to IC | xx | 0 | | | |
| W to P | xx | 55 | 5.00 | xx | 60.00 |
| P to GC | xx | xx | 5.00 | xx | 5.00 |
| P to IC | xx | xx | | | |
| GC to IC | xx | xx | xx | | |
| GC to P | xx | xx | xx | | |
| Total per acre | xx | | | | |
| <u>Project</u> | | | | | |
| W to GC | 7,334 | 403,370 | 91,675 | xx | 495,045 |
| W to IC | | | | | |
| W to P | 2,171 | 119,405 | 10,855 | xx | 130,260 |
| P to GC | 11 | xx | 55 | xx | 55 |
| P to IC | | xx | | | |
| GC to IC | | xx | xx | | |
| GC to P | | xx | xx | | |
| Total project | xx | | | | 625,360 |
| Annual amortized value <u>2/</u> | xx | xx | xx | xx | 34,257 |
| Annual mainten- ance <u>3/</u> | xx | xx | xx | xx | |
| Total annual cost: of conversions | xx | xx | xx | xx | 34,257 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent.(05478).

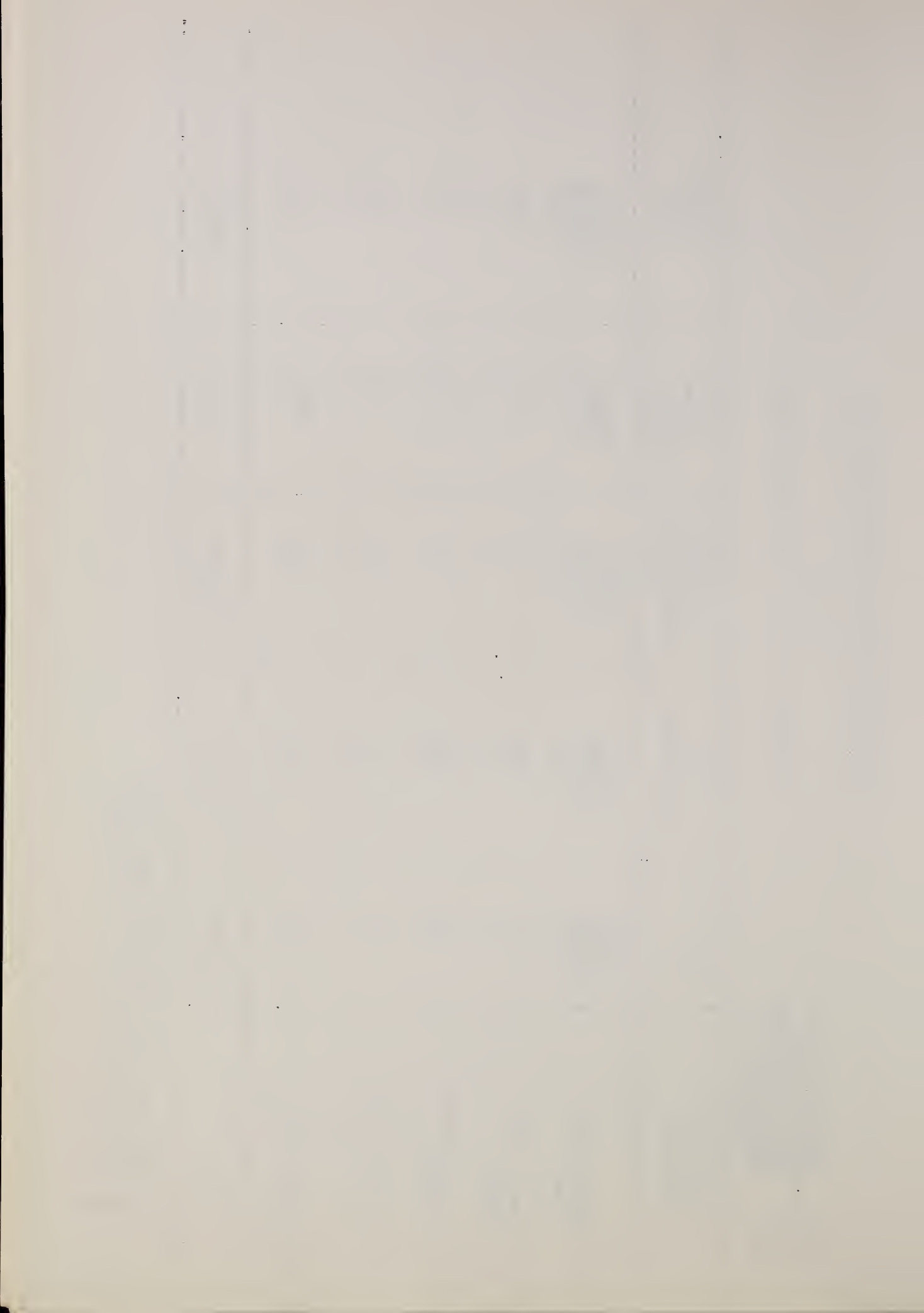
MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

TABLE VII
 ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

| Soil Mapping unit and land use | Area | Total cost installation | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|--------------------|-------------------------------|--|------------------------------------|-------------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 22,345 2,621 | 416,816 27,429 | 53,982 3,552 | 46,098 633 | 102,080 4,185 |
| 2 General Crop Pasture | 311 11 | 4,953 116 | 641 15 | 571 3 | 1,212 18 |
| 2SU General Crop Pasture | 116 4 | 1,847 41 | 239 5 | 213 1 | 452 6 |
| 4S General Crop | 61 | 793 | 103 | 91 | 194 |
| 5 General Crop | 5 | 65 | 8 | 8 | 16 |
| 6S General Crop Pasture | 310 3 | 4,272 31 | 553 4 | 657 2 | 1,210 6 |
| Total | 25,787 | 456,393 | 59,102 | 50,277 | 109,379 |

1/ Total does not include 10% other lands.
 2/ Includes engineering and contingency.
 3/ Amortized over 10 years at 5% (.12950).

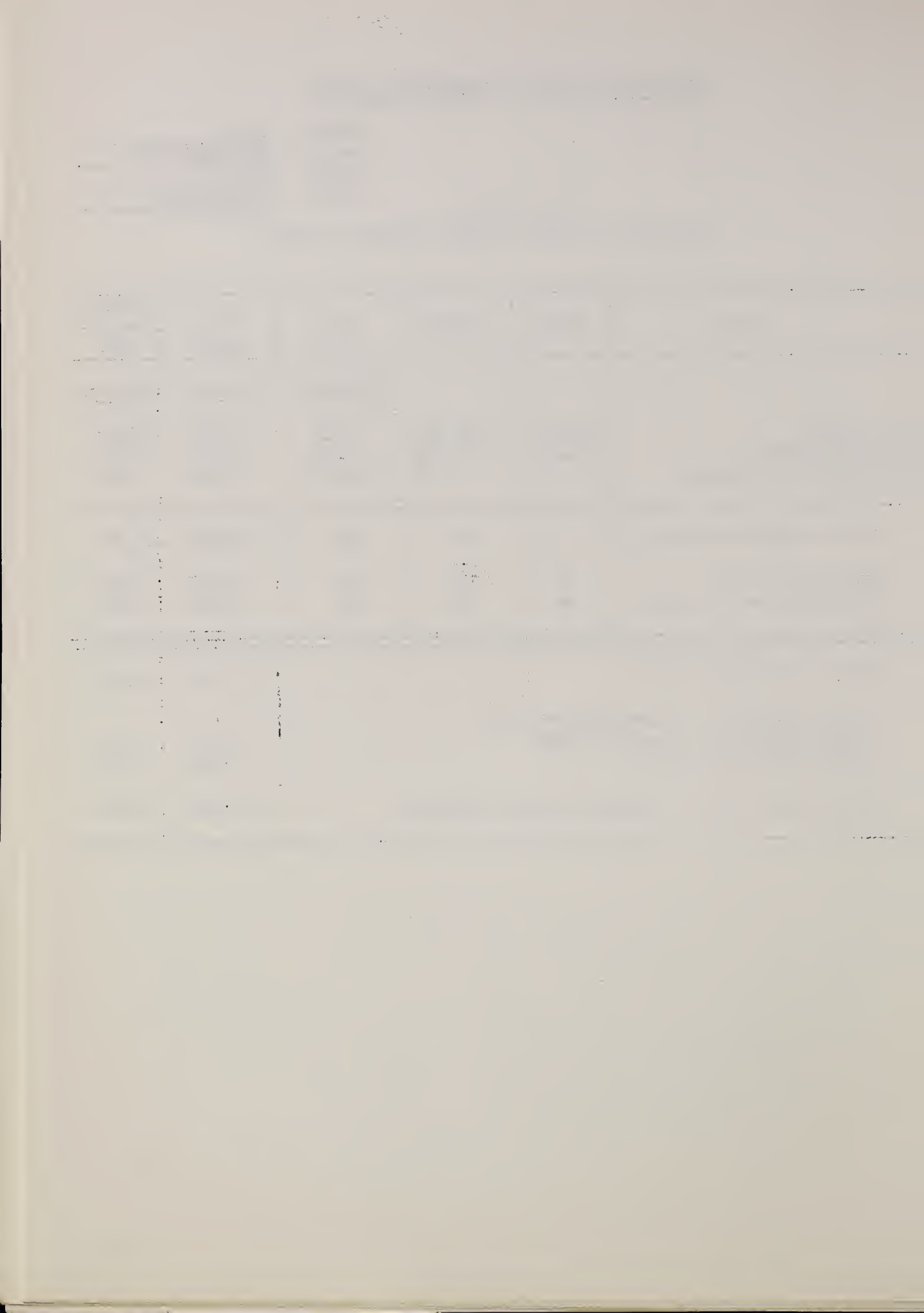


MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1
 State: Mississippi

TABLE VIII
ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit Cost | : Total Cost | : Cost Zone B-2 84% |
|--|----------|-----------|----------------|----------------|---------------------|
| | | | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| Excavation | : Cu.Yd. | : 472,824 | : 0.15 | : 70,924 | : 59,576 |
| Spreading spoil | : Cu.Yd. | : 322,344 | : 0.03 | : 9,670 | : 8,123 |
| Clearing and snagging | : Ac. | : 28 | : 300.00 | : 8,400 | : 7,056 |
| Total construction cost | : xx | : xx | : xx | : 88,994 | : 74,755 |
| Engineering cost | : xx | : xx | : xx | : 8,899 | : 7,475 |
| Contingencies and legal | : xx | : xx | : xx | : 8,899 | : 7,475 |
| Total installation cost | | | | : 106,792 | : 89,705 |
| Annual equivalent - installation cost (amortized for 20 years at 3½%) | | | | : 7,514 | : 6,312 |
| Annual maintenance cost | | | | : 4,450 | : 3,738 |
| Total annual cost of required group facilities | | | | : 11,964 | : 10,050 |



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 1, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | (2) | (3) | (4) |
|-------------------------------|-----------|-------------------|--------------------------------|
| Item | Total | Discounted Amount | Proposed Project, 80% of Total |
| | Dollars | Dollars | Dollars |
| 1. Net return with project | 1,004,835 | | |
| 2. Net return without project | 511,981 | <u>1/</u> | |
| 3. Gross benefit to project | 492,854 | 306,195 | 244,956 |
| 4. Farm drainage cost | | | |
| a. Installation cost | 59,102 | | |
| b. Maintenance cost | 50,277 | <u>2/</u> | |
| c. Total | 109,379 | 76,590 | 61,272 |
| 5. Group drainage cost | | | |
| a. Installation cost | 6,312 | | |
| b. Maintenance cost | 3,738 | <u>3/</u> | |
| c. Total | 10,050 | 8,345 | 6,676 |
| 6. Conversion cost | | | |
| a. Installation cost | 34,257 | | |
| b. Maintenance cost | 0 | <u>2/</u> | |
| c. Total | 34,257 | 23,988 | 19,190 |

1/ Discount factor for 20 years @ 5% - (.62127).

2/ Discount factor for 15 years @ 5% (.70023).

3/ Discount factor for 10 years @ 3½% (.83033).

AREAS IN THE BIG SUNFLOWER RIVER PROJECT STUDIED ON A RECONNAISSANCE BASIS

AREAS 2, 3, 4, 5, 6 AND 7

DESCRIPTION OF THE AREA

Areas 2, 3, 4, 5, 6 and 7 includes the remainder of the Big Sunflower River Project exclusive of Area 1. The project area includes all of the land drained by the Sunflower River. It includes the western portion of the Yazoo-Mississippi alluvial floodplain. Its northern limits extend to the vicinity of Clarksdale. It extends south to a point near Rolling Fork on the 97.8 MSL contour. It is bounded on the east by the Yazoo River, the Upper Auxiliary Channel and the divide between the Sunflower, Coldwater and Tallahtachie Rivers; on the west the boundary is the Mississippi River Levee and Deer Creek. The area includes all or parts of the following counties: Coahoma, Bolivar, Sunflower, Tallahtachie, Leflore, Washington and Sharkey.

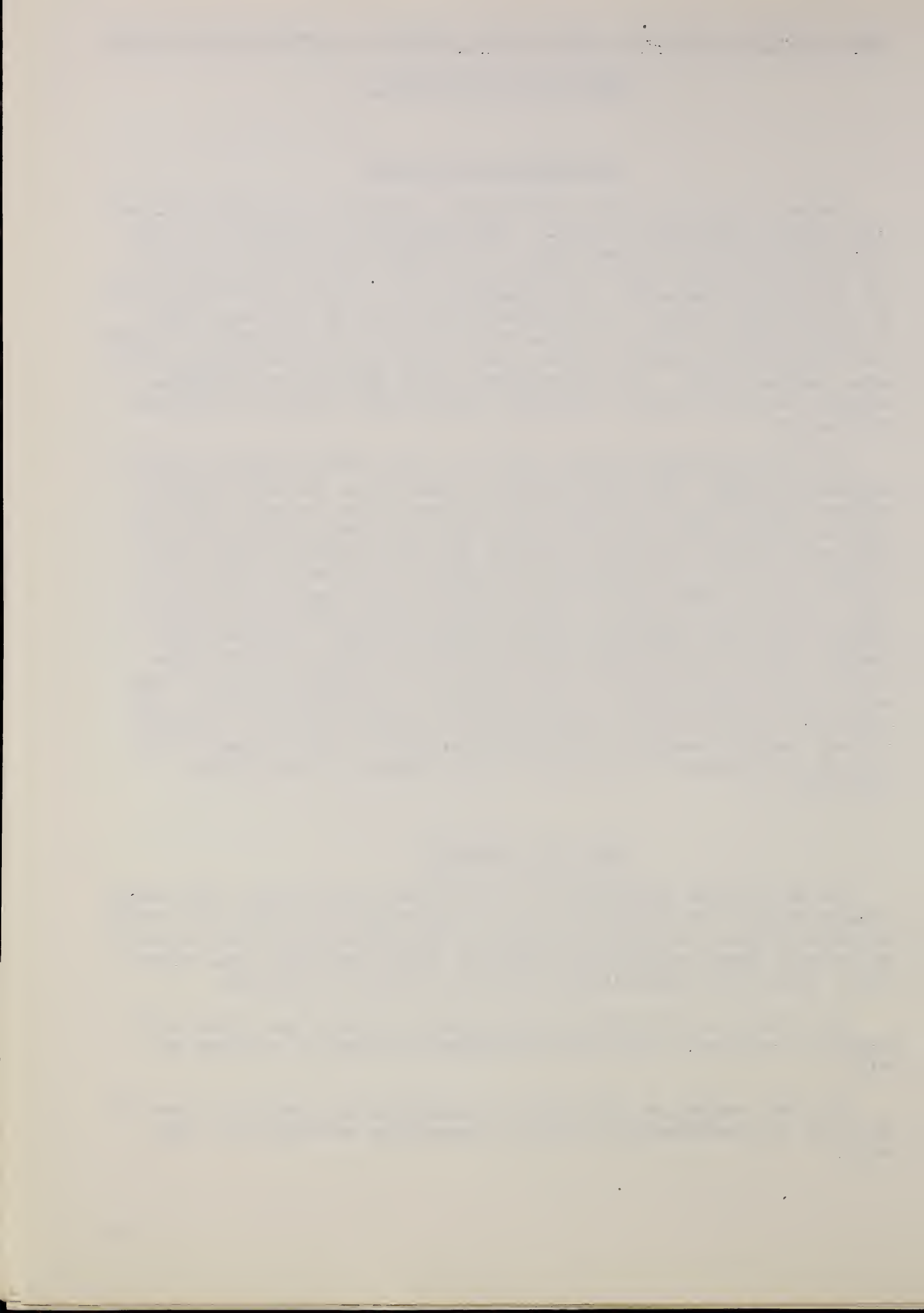
All of the drainage benefits for the A Zone will be derived from the authorized project. No study was made of this zone. The area studied comprises 164,370 acres of land that lies between the maximum limits of overflow without both authorized and proposed projects in place and the three-year frequency with both projects in place (B Zone); 8,450 acres is below the three-year frequency with projects in place (C Zone). The B Zone is broken down further into a B-1 Zone which comprises 65,140 acres of land lying between the upper limits of overflow, and the 5-year frequency with the authorized project assumed in place. The B-2 Zone contains 99,230 acres of land between the lower limits of the B-1 Zone and the upper limits of the C Zone. All of the benefits in the B-1 Zone and a part of the B-2 Zone are derived from the authorized project. The remaining benefits will be derived from the proposed project. Though no drainage benefits accrue to the proposed project in the B-1 Zone, it was studied and included in this report for the purpose of flood damage appraisal.

SOILS AND TOPOGRAPHY

In the B-1 Zone 85 percent of the soils are nearly level, very poorly drained, heavy clays, soil unit 1; in the B-2 Zone 86 percent of the soils are of this type. Less than 1 percent of the land in the B Zone in all of the areas is gently sloping, well drained, sandy loam soils, soil units 4 and 5. Most of the soils in the B Zone are subject to overflow.

The C Zone in all of these areas consists of heavy clay soils on 50 percent of the land. Most of the remaining 50 percent is in swamp and water.

The land studied or that will be benefited by the projects in most of the areas is exceptionally low land in depressions scattered over wide areas.



PROBLEMS WITHIN THE PROJECT

Much of the area is subject to frequent flooding due primarily to backwater from the Big Sunflower River. Most of the low-lying, heavy clay soils and much of the depressional areas associated with better drained soils cannot be utilized properly due to poor drainage and floodwaters remaining on the land until late spring. These conditions are due mainly to inadequate outlets for existing group drainage facilities.

EXISTING WORKS OF IMPROVEMENT

Existing works of improvement completed consists of 19.9 miles of channel improvement on the lower Sunflower River in Area 2; 7.0 miles of channel improvement on Bogue Phalia in Area 5; and 16.2 miles of channel improvement on Quiver River in Area 6. Various Drainage Districts have constructed group drainage facilities in some of the areas. However, most of these drainage systems do not function properly due to inadequate capacity, poor maintenance, and inadequate outlets.

PROPOSED PLAN OF IMPROVEMENT

The authorized project provides for the enlargement of the Big Sunflower River and its main tributaries which consists of Bogue Phalia, Quiver and Hushpuckena Rivers to a value of $C = 50$ based upon the Cypress Creek formula.

EFFECTS OF PROPOSED PLAN FOR IMPROVEMENT AND DEVELOPMENT OF THE AREAS

The proposed project will reduce the frequency of flooding and provide adequate outlets for farm and group drainage systems on 85 percent of the B-2 Zone in Area 2, 80 percent in Areas 3 and 6, 75 percent in Areas 4 and 7, and 65 percent in Area 5. Reduction of flooding, and adequate outlets for drainage systems will be provided by the authorized project for all of the B-1 Zones in all areas and in the remaining part of the B-2 Zones not benefited by the proposed project.

The protection from floodwater, and the improvement in drainage outlets provided by both the authorized and proposed projects, is expected to increase the level of management and expand the development of wooded areas for pasture and crops.

Land Use

At present approximately 49 percent of all six of the areas studied is open land; 50 percent is in woodland and the remaining 1 percent is in water area. Approximately 88 percent of the woodland in the areas is found on soil unit 1.

There is a small amount of land clearing going on in the projects in all of the areas. This clearing is the result of normal clearing activities being done in the entire delta area. Expanding rice farming enterprises have no doubt caused an increase in clearing. A small amount of



it is probably due to work already completed on the authorized project. It is anticipated that 9,367 acres of land will be cleared in the future without the projects. With both the authorized and proposed project in effect, 28,967 acres of woodland is expected to be cleared and put into crops and pasture in all of the areas. Most of the woodland conversions are expected to occur in soil unit 1, as this is the soil that will benefit most from the additional and improved drainage facilities.

Approximately 4 percent of the woodland in all of the areas studied is dedicated to forest use. Most of the dedicated woodland is in holdings belonging to hunting clubs, hardwood lumber companies, and to the State Experiment Station. The dedicated woodland is under a better than average level of management.

The condition of the non-dedicated woodland varies by areas from good to poor. The woodlands in Area 3 are in fair to good condition with several owners practicing a moderate or high level of management. The woodlands in Areas 2, 5 and 6 are in a poor to fair condition and those in Areas 4 and 7 are in poor condition except for about 5 percent that is under a high level of management. These generally poor present conditions have been brought about by fires and past cutting practices. Most of the areas have a good distribution of pole size trees of desirable species that are making good growth rates. Some of the areas have a fair saw timber volume.

Farm Drainage Systems and Cost

Table VII contains estimates of amounts and cost of farm drainage systems by soil units in the B-2 Zone that will be constructed after satisfactory group drainage systems and adequate major outlets are developed. These estimates anticipate that 72 percent of the gross open land will be drained and used for crop and pasture production with the project in effect. Approximately 18 percent will remain as wet land due to the lack of farmer participation. The remaining 10 percent will be utilized in roads, farmsteads, etc. It is estimated that approximately 26 percent of the present open land is adequately drained.

Cost includes the installation (construction, engineering and contingency) required for farm drainage systems for satisfactory removal of surface water to obtain the best crop production. Requirements vary by soil units and land use. Drainage requirements for rotated pasture land were the same as cropland on similar soil units. Cost includes all ditching and appurtenant structural needs for drainage systems to serve an average of one square mile. Estimates are based on standard design data for conditions involved.

Capital costs of farm drainage systems have been amortized for a useful life period of 10 years at 5 percent. The life expectancy of farm drainage systems is influenced by soil units, cropping patterns, which are largely determined by soils units, and the stability of agriculture in the study area. It was determined that the life expectancy will be 10 years. Maintenance costs, varying with soil mapping units and land use, have been added to the amortized annual equivalent of installation cost



to derive the annual cost of farm drainage systems. Farm drainage systems and cost were determined for the B-2 Zones only. Present cost of farm drainage systems are expected to prevail under future with project conditions.

Group Drainage Systems and Cost

Group drainage systems and costs were established on a project-wide basis. Any group facilities running through the C Zone were for the purpose of tying-in Zone B-2 with major drainage outlets proposed in the project.

Approximately 366 miles of group drainage ditches are now in place. Channel enlargement on approximately 59 miles of existing ditches; the construction of 25 miles of new ditches; and lowering the gradient on 330 miles of existing ditches will be required to give adequate group facilities for farm drainage systems anticipated with the proposed works of improvement in place.

Table VIII itemizes the cost required to install and maintain intermediate group drainage facilities and appurtenant structures for the B-1 and B-2 Zones, and prorates the cost in the B-2 Zone on the basis of total area in each zone. Installation costs have been amortized for a useful life period of 20 years at $3\frac{1}{2}$ percent. This useful life is based on known life of comparable ditches in this immediate vicinity. Maintenance costs have been added to this amount to derive the total annual cost of group drainage systems. Present costs of group drainage facilities are expected to prevail under future with project conditions.

BENEFITS AND ASSOCIATED COSTS

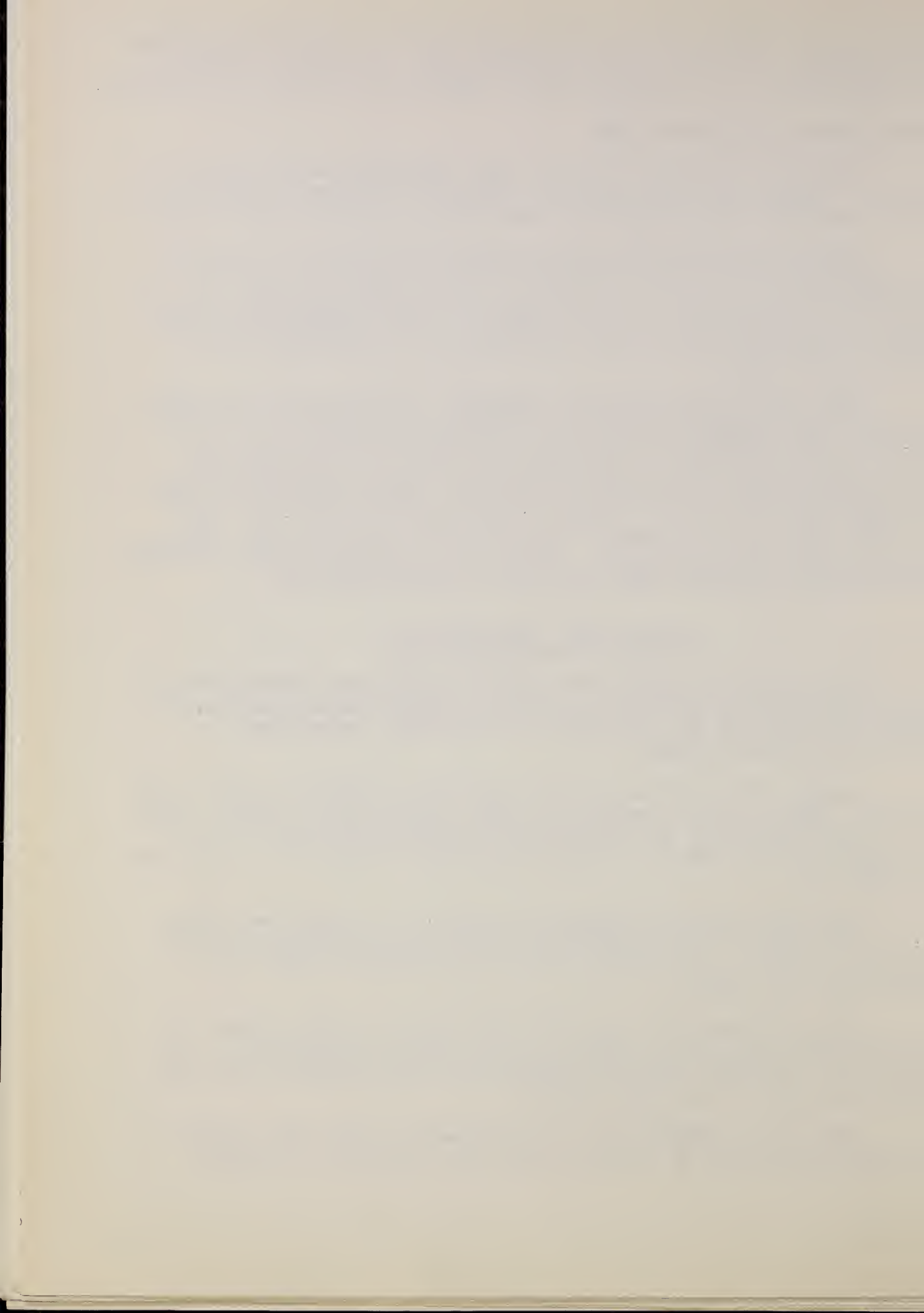
Net enhancement benefits which will accrue from the project works of improvement will be improvements in farm and group drainage systems, and improved management and better use of technological advancement as a result of improved drainage.

Annual equivalent values of net income from woodland have been determined. These are actual present net income values plus the present worth of deferred net income that would result from the application of better management in the future. No increase in forest income due to the project is expected.

The study on Areas 2 through 7 was made on a reconnaissance basis with very little field investigation except on group drainage which was studied in detail. Only summary tables were prepared in the case of Tables II, III, and IV.

Table IX summarizes for the B-2 Zone--- (1) net annual return and benefits from Table V; (2) annual costs of making land conversions from Table VI; (3) annual costs in installing and maintaining farm and group drainage systems, Tables VII and VIII.

Gross project benefits have been discounted to take into account an anticipated time lag in accrual of increasing benefits after project



installation. Time lags used were 15 years for Areas 4 and 7, and 20 years for Areas 2, 3, 5 and 6. A projected private interest rate of 5 percent was used in arriving at discount factors.

Annual installation and maintenance costs of farm drainage systems and land conversions have been discounted to take into account the following considerations: (1) interest rate 5%, (2) time lag, 10 years for Areas 4 and 7 and 15 years for Areas 2, 3, 5 and 6, and (3) period of analysis 50 years.

Annual installation and maintenance costs of group drainage systems have been discounted to take into account the following considerations: (1) interest rate $3\frac{1}{2}\%$, (2) time lag 5 years for Areas 4 and 7 and 10 years for Areas 2, 3, 5 and 6, and (3) period of analysis 50 years.

The lags described are based upon local experience and present trends in this and other similar areas under conditions which parallel those being evaluated. Instantaneous installation of the project is assumed for discount purposes and is considered to be year zero as a reference point for all associated measure costs and benefits contingent upon project installation. Progress towards realization of full benefits from proposed project works of improvement is expected to be incremental and as follows:

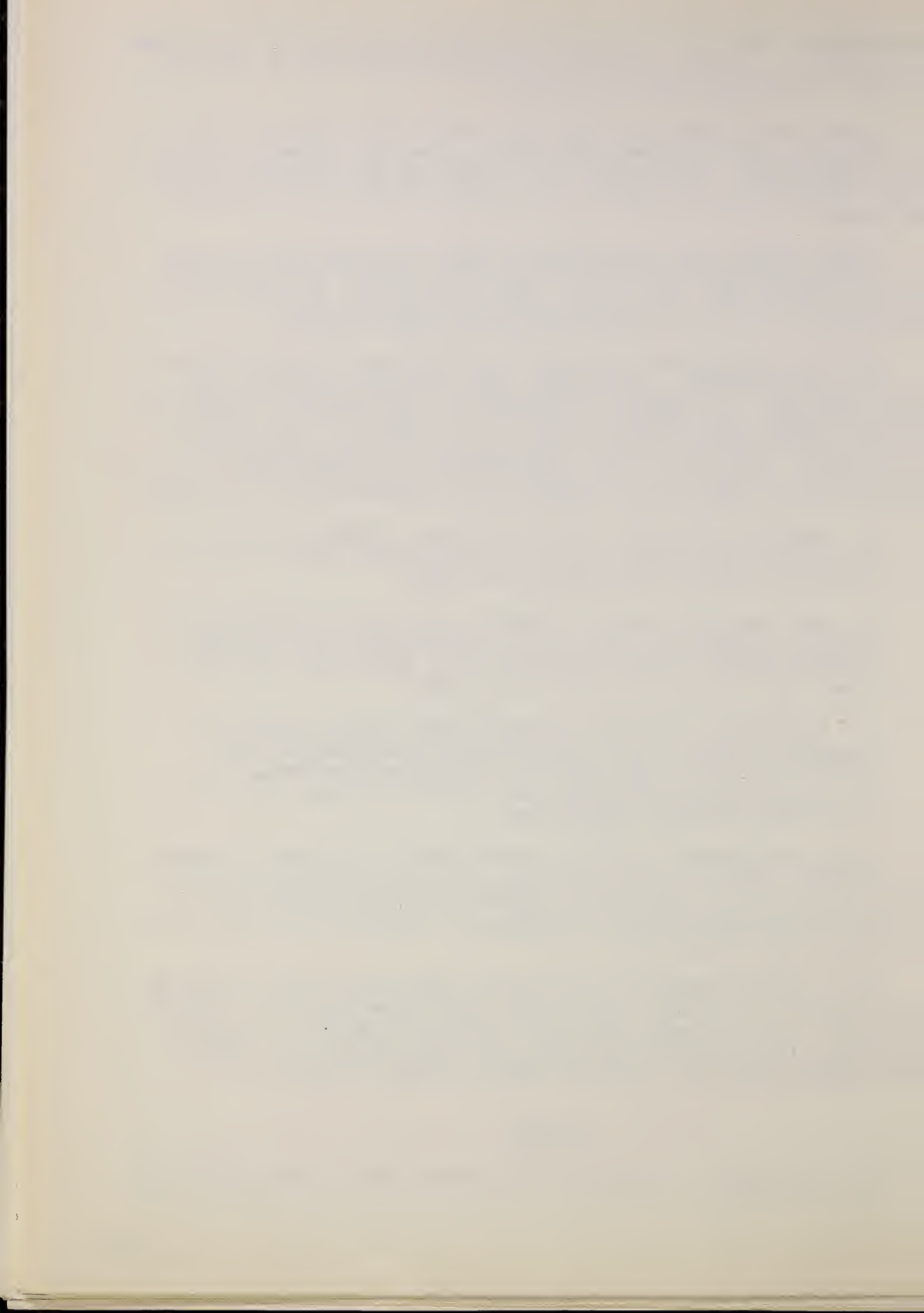
1. Complete installation of group drainage facilities is expected to take 5 years in Areas 4 and 7 and 10 years in Areas 2, 3, 5 and 6 from the last year of project installation.
2. Land conversions and the complete installation of farm drainage systems is expected to occur 5 years after installation of group drainage systems or 10 years after project installation for Areas 4 and 7 and 15 years for Areas 2, 3, 5 and 6.
3. Realization of maximum estimated yields and full benefits is expected to require a 5 year conservation buildup period after land conversions are made and farm drainage systems installed or a total of 15 years for Areas 4 and 7 and 20 years for Areas 2, 3, 5 and 6 after project installation.

A proportionate part of all associated costs and of project benefits is assumed to accrue the first year after instantaneous project installation, to increase uniformly for the period of lag, and to level off at the end of the period of lag and continue at a constant rate to the end of the project life of 50 years.

It is estimated that 85 percent of the gross benefits and associated cost in the B-2 Zone will be derived from the proposed project for Area 2; 80 percent in Areas 3 and 6; 75 percent in Areas 4 and 7; and 65 percent in Area 5. These estimates are based upon field investigation studies that included soil types, land use, slope, cropping patterns, etc.

SUMMARY

The installation of authorized and proposed works of improvement will



reduce the frequency of flooding, and provide adequate farm and group drainage outlets for approximately 164,370 acres of land.

It is anticipated that as a result of works of improvement the areas subject to flooding will be reduced materially and that agricultural development will proceed at a fairly rapid rate.

As a result of agricultural development expected to take place in the project area due to increased drainage facilities, there will be an annual gross benefit of \$266,493; an annual associated cost of \$139,575; with an annual net benefit of \$126,918.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

TABLE I
 Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 13,109 | | 10,170 | | 23,279 |
| 2 | | 411 | | 34 | | 445 |
| 2SU | | 34 | | 11 | | 45 |
| 4S | | 45 | | 11 | | 56 |
| 5 | | 68 | | 0 | | 68 |
| 6 | | 3,340 | | 270 | | 3,610 |
| 6S | | 124 | | 221 | | 345 |
| 6SU | | 386 | | 60 | | 446 |
| 6U | | 305 | | 11 | | 316 |
| 14 | | 0 | | 490 | | 490 |
| Subtotal - All Soils | | 17,822 | | 11,278 | | 29,100 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|--------|--------|--------|
| 1 | 22,251 | 24,042 | 46,293 |
| 2 | 828 | 39 | 867 |
| 5 | 33 | 0 | 33 |
| 6 | 2,239 | 648 | 2,887 |
| 6S | 261 | 659 | 920 |
| 6SU | 340 | 0 | 340 |
| 14 | 0 | 1,909 | 1,909 |
| Water | | | 51 |
| Subtotal - All Soils | 25,952 | 27,297 | 53,300 |

Zone C - Zone of no Project Benefit

| | | | |
|----------------------|---|-------|-------|
| 1 | 0 | 460 | 460 |
| 6S | 0 | 240 | 240 |
| 14 | 0 | 2,019 | 2,019 |
| Water | | | 1,004 |
| Subtotal - All Soils | 0 | 2,719 | 3,723 |

| | | | |
|-----------------|--------|--------|--------|
| Total - Project | 43,774 | 41,294 | 86,123 |
|-----------------|--------|--------|--------|

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|--------|------------|----------|-----------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| : | : | 2/ | : | 3/ | : |
| All | Open Land | 17,822 | : | : | : |
| : | Crops | 16,041 | : | : | : |
| : | Cotton | 3,858 | Lbs. Lint | 327 | 1,260,080 |
| : | Corn | 422 | Bu. | 19 | 8,144 |
| : | Soybeans | 5,008 | Bu. | 14 | 68,955 |
| : | Soybeans (Fol.oats) | (540) | Bu. | 8 | 4,418 |
| : | Small Grains | 2,642 | Bu. | 25 | 65,706 |
| : | Rice | 1,062 | Cwt. | 25 | 20,550 |
| : | Idle | 853 | : | : | : |
| : | Pasture | 2,196 | Lbs. Beef | 148 | 325,460 |
| : | Other 1/ | 1,781 | : | : | : |
| : | Forest Land | 11,198 | : | : | : |
| : | : | 4/ | : | : | : |
| : | Total | 29,020 | : | : | : |
| : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include 80 acres of dedicated woodlands.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|---------|----------|------------|-----------|----------|---------------------|--------------------|------------|---------|
| Soil: | Land use and crop | acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Production | Return |
| Unit: | distribution | | | Per Acre | | Dollars | Dollars | Per Acre | Total | Return |
| : | : | 2/ | : | 3/ | : | Dollars | Dollars | Dollars | Dollars | Dollars |
| : | : | : | : | : | : | : | : | : | : | : |
| All | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | : | : | : | : | : | : | : | : | : |
| : | Cotton | 5,016 | Lbs.Lint | 422 | 2,115,410 | 0.318286 | 673,305 | 116.74 | 585,568 | 87,737 |
| : | Corn | 602 | Bu. | 25 | 14,760 | 1.45 | 21,402 | 25.92 | 15,604 | 5,798 |
| : | Soybeans | 5,604 | Bu. | 20 | 110,377 | 2.35 | 259,386 | 29.11 | 163,132 | 96,254 |
| : | Soybeans (Fol.Oats) | (1,381) | Bu. | 13 | 17,266 | 2.35 | 40,575 | 22.62 | 31,238 | 9,337 |
| : | Small Grains | 2,922 | Bu. | 29 | 85,264 | 0.95 | 81,001 | 21.43 | 62,618 | 18,383 |
| : | Idle | 938 | : | : | : | 5/ | : | : | : | : |
| : | Pasture | 2,408 | Lbs.Beef | 180 | 432,760 | 0.1805 | 78,113 | 25.41 | 61,187 | 16,926 |
| : | Other 1/ | 1,945 | : | : | : | : | : | : | : | : |
| : | Forest Land | 4,065 | : | : | : | 8.99 | 36,544 | 5.74 | 23,333 | 13,211 |
| : | : | 6/ | : | : | : | : | : | : | : | : |
| : | Total | 23,500 | : | : | : | : | 1,190,326 | : | 942,680 | 247,646 |
| : | : | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 5,600 acres of land that will remain in woods.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|---------|----------|------------|-----------|----------|---------------------|--------------------|-----------|---------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Total | Net |
| Unit: | distribution | | | Per Acre | | Dollars | Dollars | Per Acre | Dollars | Return |
| : | : | 2/ | : | 3/ | : | : | : | : | : | : |
| All : | Open Land | 23,500 | : | : | : | : | : | : | : | : |
| : | Crops | 21,149 | : | : | : | : | : | : | : | : |
| : | Cotton | 8,147 | Lbs.Lint | 498 | 4,546,620 | 0.318286 | 1,290,529 | 151.95 | 1,237,937 | 52,592 |
| : | Corn | 707 | Bu. | 31 | 21,982 | 1.45 | 31,874 | 30.29 | 21,415 | 10,459 |
| : | Soybeans | 4,654 | Bu. | 24 | 111,110 | 2.35 | 261,108 | 32.59 | 151,674 | 109,434 |
| : | Soybeans (Fol.Oats) | (2,055) | Bu. | 15 | 31,821 | 2.35 | 74,779 | 25.35 | 55,094 | 22,685 |
| : | Small Grains | 4,140 | Bu. | 37 | 152,906 | 0.95 | 145,261 | 25.46 | 105,404 | 39,857 |
| : | Idle | 424 | : | : | : | 5/ | : | : | : | : |
| : | Pasture | 3,077 | Lbs.Beef | 229 | 703,870 | 0.1805 | 127,049 | 32.45 | 99,849 | 27,200 |
| : | Other 1/ | 2,351 | : | : | : | : | : | : | : | : |
| : | : | 6/ | : | : | : | : | : | : | : | : |
| : | Total | 23,500 | : | : | : | : | 1,930,600 | : | 1,668,373 | 262,227 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 5,600 acres of land that will remain in woods.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) : | (2) | : | (3) | : | (4) | (5) | (6) |
|--------|---------------------|---|-----------|---|------------|-----------|------------|
| Soil : | Land Use and Crop | : | Acres | : | Production | | |
| Unit : | Distribution | : | | : | Unit | Per Acre | Total |
| : | : | : | <u>2/</u> | : | : | <u>3/</u> | : |
| All : | Open Land | : | 25,952 | : | : | : | : |
| : | Crops | : | 23,357 | : | : | : | : |
| : | Cotton | : | 3,981 | : | Lbs. Lint: | 302 | :1,202,630 |
| : | Corn | : | 667 | : | Bu. | 18 | : 12,310 |
| : | Soybeans | : | 7,747 | : | Bu. | 13 | : 101,344 |
| : | Soybeans (Fol.oats) | : | (725) | : | Bu. | 8 | : 5,539 |
| : | Small Grains | : | 4,312 | : | Bu. | 24 | : 106,250 |
| : | Rice | : | 1,802 | : | Cwt. | 25 | : 45,050 |
| : | Idle | : | 1,310 | : | : | : | : |
| : | Pasture | : | 3,538 | : | Lbs.Beef | 145 | : 514,220 |
| : | Other <u>1/</u> | : | 2,595 | : | : | : | : |
| : | Forest Land | : | 27,218 | : | : | : | : |
| : | : | : | <u>4/</u> | : | : | : | : |
| : | Total | : | 53,170 | : | : | : | : |
| : | : | : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Total does not include 80 acres of dedicated woodland and 51 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

SUMMARY - TABLE III B

Project: Big Sunflower

(Zone for Drainage and Flood Control Calculations)

Reach: Area 2, Zone B-2

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

State: Mississippi

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|----------------------|-----------|-----------|------------|-----------|----------|---------------------|--------------------|-----------|---------|
| Soil : | Land Use and Crop | Acres : | Unit : | Production | Total | Per Unit | Value of Production | Cost of Production | Total | Net |
| Unit : | Distribution | : | : | Per Acre : | Total | Per Unit | Total | Per Acre : | Total | Return |
| : | : | : | : | : | : | Dollars | Dollars | Dollars | Dollars | Dollars |
| All : | Open Land | 2/ | : | 3/ | : | : | : | : | : | : |
| : | Crops | 29,748 | : | : | : | : | : | : | : | : |
| : | Cotton | 26,774 | : | : | : | 4/ | : | : | : | : |
| : | Corn | 5,680 | Lbs. Lint | 388 | 2,205,200 | 0.318286 | 701,884 | 109.04 | 619,347 | 82,537 |
| : | Soybeans | 1,023 | Bu. | 24 | 24,186 | 1.45 | 35,070 | 25.35 | 25,933 | 9,137 |
| : | Soybeans (For seeds) | 9,398 | Bu. | 19 | 177,903 | 2.35 | 418,072 | 28.20 | 265,024 | 153,048 |
| : | Small Grains | (2,375) | Bu. | 12 | 29,470 | 2.35 | 69,254 | 21.91 | 52,036 | 17,218 |
| : | Idle | 5,185 | Bu. | 29 | 150,756 | 0.95 | 143,218 | 21.43 | 111,115 | 32,103 |
| : | Pasture | 1,509 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | 3,979 | Lbs. Beef | 175 | 695,430 | 0.1805 | 125,525 | 24.64 | 98,043 | 27,482 |
| : | Forest Land | 2,974 | : | : | : | : | : | : | : | : |
| : | | 9,565 | : | : | : | 8.99 | 85,989 | 5.74 | 54,903 | 31,086 |
| : | Total | 6/ 29,313 | : | : | : | : | : | : | : | : |
| : | | : | : | : | : | : | 1,579,012 | : | 1,226,401 | 352,611 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 13,936 acres of land that will remain in woods and 51 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|--------------------|---------|------------|------------|-----------|----------|---------------------|----------|--------------------|---------|
| Soil | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit | Distribution | | | Per Acre | | Dollars | Dollars | Dollars | Total | Return |
| All | Open Land | 2 | | 3 | | | | | | |
| | Crops | 39,313 | | | | | | | | |
| | Cotton | 35,382 | | | | | | | | |
| | Corn | 11,781 | Lbs. Lint: | 483 | 5685,220 | 0.318286 | 1,809,526 | 129.60 | 1,526,818 | 282,708 |
| | Soybeans | 1,269 | Bu. | 30 | 38,274 | 1.45 | 55,497 | 29.51 | 37,448 | 18,049 |
| | Soybeans(Fol.oats) | 8,666 | Bu. | 24 | 205,381 | 2.35 | 482,645 | 32.58 | 282,338 | 200,307 |
| | Small Grains | (3,487) | Bu. | 15 | 53,144 | 2.35 | 124,888 | 25.55 | 89,093 | 35,795 |
| | Idle | 7,568 | Bu. | 37 | 276,944 | 0.95 | 263,097 | 25.45 | 192,606 | 70,491 |
| | Pasture | 708 | | | | | | | | |
| | Other 1/ | 5,390 | Lbs. Beef | 224 | 1,204,860 | 0.1805 | 217,477 | 31.84 | 171,618 | 45,859 |
| | Total | 3,931 | | | | | | | | |
| | | 6/ | | | | | | | | |
| | | 39,313 | | | | | 2,953,130 | | 2,299,921 | 653,209 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 13,936 acres of land that will remain in woods and 51 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

SUMMARY - TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-------|------------|----------|-------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | | | | |
| | Crops | | | | |
| | Cotton | | | | |
| | Corn | | | | |
| | Soybeans | | | | |
| | Soybeans (Fol.oats) | | | | |
| | Small Grains | | | | |
| | Idle | | | | |
| | Pasture | | | | |
| | Other ^{1/} | | | | |
| | Forest Land | | | | |
| | Total ^{2/} | 0 | | | |

^{1/} Farmsteads, farm roads, waste and non-agricultural.

^{2/} Total does not include 2,719 acres of land that will remain in woods and 1,004 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

SUMMARY - TABLE III C
 (Zone of no Project Benefit) 2/
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|----------------------|-------|------|------------|-------|----------|---------------------|--------------------|---------|--------|
| Soil : | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Total | Net |
| Unit : | Distribution | | | Per Acre | | Dollars | Dollars | Per Acre | Dollars | return |
| All : | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | : | : | : | : | : | : | : | : | : |
| : | Cotton | : | : | : | : | : | : | : | : | : |
| : | Corn | : | : | : | : | : | : | : | : | : |
| : | Soybeans | : | : | : | : | : | : | : | : | : |
| : | Soybeans (Pol. oats) | : | : | : | : | : | : | : | : | : |
| : | Small Grains | : | : | : | : | : | : | : | : | : |
| : | Idle | : | : | : | : | : | : | : | : | : |
| : | Pasture | : | : | : | : | : | : | : | : | : |
| : | Other 1/ | : | : | : | : | : | : | : | : | : |
| : | | : | : | : | : | : | : | : | : | : |
| : | Total | 31 | : | : | : | : | : | : | : | : |
| : | | 0 | : | : | : | : | : | : | : | : |
| : | | : | : | : | : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Data is same for both "With project" and "Without project" conditions; no Table IV C required.
 3/ Total does not include 2,719 acres of land that will remain in woods and 1,004 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 2
State: Mississippi

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------|--------|-----------|---|--|-----------|-----------|---------|------------------------------------|
| Soil Unit | Acres | | Future Without Project (Production in Dollars) | Future With Project (Production in Dollars) | | | | Difference in Net Production |
| | | | Gross | Cost | Net | Gross | Cost | Net |
| Zones B-2 and C | | | | | | | | |
| All | 39,313 | 1,579,012 | 1,226,401 | 352,611 | 2,953,130 | 2,299,921 | 653,209 | 300,598 |
| Total 1/ | 39,313 | 1,579,012 | 1,226,401 | 352,611 | 2,953,130 | 2,299,921 | 653,209 | 300,598 |

1/ Total area reduced by 16,655 acres that will remain in woodland and 1,055 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) | : | (2) | : | (3) | : | (4) | : | (5) |
|----------------------|---|--------------|---|----------------|---|----------------|---|----------------|
| Type of | : | Total | : | Cost | : | Cost | : | Total |
| Conversion <u>1/</u> | : | amount | : | of | : | of | : | cost |
| | : | | : | clearing | : | smoothing | : | |
| | : | <u>Acres</u> | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| Per Acre | : | | : | | : | | : | |
| W to GC | : | xx | : | 55 | : | 12.50 | : | 67.50 |
| W to IC | : | xx | : | | : | | : | |
| W to P | : | xx | : | 55 | : | 5.00 | : | 60.00 |
| P to GC | : | xx | : | xx | : | | : | 5.00 |
| P to IC | : | xx | : | xx | : | | : | |
| GC to IC | : | xx | : | xx | : | xx | : | |
| GC to P | : | xx | : | xx | : | xx | : | |
| Total per acre | : | xx | : | | : | | : | |
| Project | : | | : | | : | | : | |
| W to GC | : | 7,205 | : | 396,275 | : | 90,062 | : | 486,337 |
| W to IC | : | | : | | : | | : | |
| W to P | : | 1,403 | : | 77,165 | : | 7,015 | : | 84,180 |
| P to GC | : | | : | xx | : | | : | |
| P to IC | : | | : | xx | : | | : | |
| GC to IC | : | | : | xx | : | xx | : | |
| GC to P | : | | : | xx | : | xx | : | |
| Total project | : | xx | : | | : | | : | 570,517 |
| Annual amortized | : | xx | : | xx | : | xx | : | 31,253 |
| value <u>2/</u> | : | | : | | : | | : | |
| Annual mainten- | : | | : | | : | | : | |
| ance | : | xx | : | xx | : | xx | : | 0 |
| Total annual | : | | : | | : | | : | |
| cost of con- | : | | : | | : | | : | |
| versions | : | xx | : | xx | : | xx | : | 31,253 |

1/ W--woodland; GC--general dry farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 2, Zone B-2

State: Mississippi

TABLE VII

ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

| Soil Mapping unit and Land use | Area | Total Cost | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|-----------------|-------------------|--|------------------------------------|-------------------------|
| | 1/ Acres | 2/ Dollars | 3/ Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 14,644 1,847 | 273,183 19,329 | 35,277 2,503 | 31,521 446 | 66,898 2,949 |
| 2 General Crop Pasture | 228 8 | 3,631 83 | 470 11 | 419 2 | 889 13 |
| 5 General Crop | 4 | 52 | 7 | 6 | 13 |
| 6 General Crop Pasture | 862 21 | 11,878 221 | 1,538 29 | 1,827 17 | 3,365 46 |
| 6S General Crop Pasture | 233 7 | 3,211 74 | 416 10 | 494 6 | 910 16 |
| 6SU General Crop Pasture | 88 3 | 1,213 31 | 157 4 | 187 2 | 344 6 |
| Total | 17,945 | 312,906 | 40,522 | 34,927 | 75,449 |

1/ Does not include 10% other lands.

2/ Includes construction engineering and contingency.

3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit | : Total | : Cost |
|--|----------|-------------|----------------|----------------|----------------|
| | : Unit | : Amount | : Cost | : Cost | : ZoneB-2 |
| | | | | | : 65% |
| | | | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| Excavation | : Cu.Yd. | : 1,211,395 | : 0.15 | : 181,709 | : 118,117 |
| Spreading spoil | : Cu.Yd. | : 676,432 | : 0.03 | : 20,293 | : 13,190 |
| Clearing right-of-way | : Ac. | : 86 | : 75.00 | : 6,450 | : 4,192 |
| Right-of-way easements | : Ac. | : 124 | : 81.05 | : 10,050 | : 6,532 |
| Crossings | : Ft. | : 126 | : 40.00 | : 5,040 | : 3,276 |
| Clearing and snagging | : Ac. | : 292 | : 300.00 | : 87,600 | : 56,940 |
| | | | | | |
| Total construction cost | : xx | : xx | : xx | : 311,142 | : 202,243 |
| | | | | | |
| Engineering cost | : xx | : xx | : xx | : 31,114 | : 20,224 |
| Contingencies and legal | : xx | : xx | : xx | : 31,114 | : 20,224 |
| | | | | | |
| Total installation cost | | | | : 373,370 | : 242,691 |
| | | | | | |
| Annual equivalent - installation cost | | | | : 26,270 | : 17,076 |
| (amortized for 20 years at 3½%) | | | | | |
| Annual maintenance cost | | | | : 15,557 | : 10,112 |
| | | | | | |
| Total annual cost of required group facilities | | | | : 41,827 | : 27,188 |
| | | | | | |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | : | (2) | : | (3) | : | (4) |
|-------------------------------|---|----------------|---|-------------------|---|--------------------------------|
| Item | : | Total | : | Discounted Amount | : | Proposed Project, 80% of total |
| | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| 1. Net return with project | : | 653,209 | : | | : | |
| 2. Net return without project | : | 352,611 | : | 1/ | : | |
| 3. Gross benefit to project | : | 300,598 | : | 186,753 | : | 149,402 |
| | : | | : | | : | |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 40,522 | : | | : | |
| b. Maintenance cost | : | 34,927 | : | 2/ | : | |
| c. Total | : | 75,449 | : | 52,832 | : | 42,265 |
| | : | | : | | : | |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 17,076 | : | | : | |
| b. Maintenance cost | : | 10,112 | : | 3/ | : | |
| c. Total | : | 27,188 | : | 22,575 | : | 18,060 |
| | : | | : | | : | |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 31,253 | : | | : | |
| b. Maintenance cost | : | 0 | : | 2/ | : | |
| c. Total | : | 31,253 | : | 21,884 | : | 17,507 |
| | : | | : | | : | |

1/ Discount factor for 20 years @ 5% - (.62127).

2/ Discount factor for 15 years @ 5% - (.70023).

3/ Discount factor for 10 years @ 3½% - (.83033).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

| | |
|----------|----------------------|
| Basin: | <u>Yazoo</u> |
| Project: | <u>Big Sunflower</u> |
| Reach: | <u>Area 3</u> |
| State: | <u>Mississippi</u> |

TABLE I
Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 2,366 | | 3,112 | | 5,478 |
| 6S | | 0 | | 302 | | 302 |
| Subtotal - All Soils | | 2,366 | | 3,414 | | 5,780 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-------|-------|-------|
| 1 | 957 | 1,030 | 1,987 |
| 1S | 68 | 271 | 339 |
| 4SU | 126 | 55 | 181 |
| 6S | 0 | 39 | 39 |
| 6SU | 48 | 126 | 174 |
| 14 | 0 | 210 | 210 |
| Subtotal - All Soils | 1,199 | 1,731 | 2,930 |
| Total - Project | 3,565 | 5,145 | 8,710 |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) : | (2) : | (3) : | (4) : | (5) : | (6) : |
|--------|-----------------------|---------|------------|------------|---------|
| Soil : | Land Use and Crop : | Acres : | Production | | |
| Unit : | Distribution : | | Unit : | Per Acre : | Total |
| | | 2/ | | 3/ | |
| All : | Open Land : | 2,366 : | | | |
| | Crops : | 2,129 : | | | |
| | Cotton : | 426 : | Lbs. Lint: | 285 : | 121,410 |
| | Corn : | 128 : | Bu. : | 14 : | 1,792 |
| | Soybeans : | 596 : | Bu. : | 13 : | 7,748 |
| | Soybeans (Fol.oats) : | (64) : | Bu. : | 8 : | 512 |
| | Small Grains : | 447 : | Bu. : | 26 : | 11,622 |
| | Rice : | 213 : | Cwt. : | 25 : | 5,325 |
| | Idle : | 106 : | | | |
| | Pasture : | 213 : | Lbs. Beef: | 139 : | 29,607 |
| | Other 1/ : | 237 : | | | |
| | Forest Land : | 3,414 : | | | |
| | | | | | |
| | Total : | 5,780 : | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

Basin: Yazoo
Project: Big Sunflower
Reach: Area 3, Zone B-1
State: Mississippi

[illegible]

MISSISSIPPI-IVIR & TRUTHIES STUDY

Basin: Yazoo

Project: Big Sunflower

each: Area 3, Zone F-1

State: Mississippi

SUMMARY - TABLE IV R

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COST, AND NET RETURNS: FUTURE CONDITIONS WITH FICJOST (Based on projected prices)

[illegible]

1/ Farmsteads, farm roads, waste and non-agricultural.

2/2 Parenthetical amounts are duplicated across.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

L4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 1,741 acres that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|----------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | 3/ | |
| All | Open Land | 1,199 | | | |
| | Crops | 1,078 | | | |
| | Cotton | 216 | Lbs. Lint | 345 | 74,562 |
| | Corn | 65 | Bu. | 17 | 1,083 |
| | Soybeans | 349 | Bu. | 15 | 5,208 |
| | Soybeans (Fol.oats) | (38) | Bu. | 9 | 351 |
| | Small Grains | 215 | Bu. | 27 | 5,709 |
| | Rice | 86 | Cwt. | 25 | 2,150 |
| | Idle | 49 | | | |
| | Pasture | 98 | Lbs. Beef | 144 | 14,154 |
| | Other 1/ | 121 | | | |
| | Forest Land | 1,636 | | | |
| | Total | 4/ 2,835 | | | |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include 95 acres of dedicated woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

each: Area 3, Zone B-2

State: Mississippi

SUMMARY - TABLE III B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-------|-----------|------------|----------|----------|---------------|----------|----------|----------|
| Soil : | Land Use and Crop | Acres | Unit | Production | Total | Value | of Production | Cost | Net | |
| Unit : | Distribution | | | Per Acre | Per Acre | Per Acre | Per Acre | Per Acre | Per Acre | Per Acre |
| | | | | | | | | | | |
| All | Open Land | 21 | | 37 | | | | | | |
| | Crops | 1,343 | | | | | | | | |
| | Cotton | 1,209 | | | | | | | | |
| | Corn | 315 | Lbs. lint | 460 | 145,155 | 0.318286 | 46,201 | 126.27 | 39,775 | 6,426 |
| | Soybeans | 59 | Bu. | 21 | 1,252 | 1.45 | 1,815 | 23.24 | 1,371 | 444 |
| | Soybeans (Fol.oats) | 332 | Bu. | 20 | 6,506 | 2.35 | 15,289 | 28.93 | 9,605 | 5,684 |
| | Small Grains | (186) | Bu. | 13 | 2,341 | 2.35 | 5,501 | 22.63 | 4,209 | 1,292 |
| | Idle | 306 | Bu. | 29 | 8,890 | 0.95 | 8,446 | 21.42 | 6,555 | 1,891 |
| | Pasture | 54 | | | | | | | | |
| | Other 1/ | 143 | Lbs. Beef | 184 | 26,249 | 0.1805 | 4,738 | 26.02 | 3,721 | 1,017 |
| | Forest land | 134 | | | | | | | | |
| | | 502 | | | | 14.37 | 7,214 | 8.54 | 4,287 | 2,927 |
| | | | | | | | | | | |
| | Total | 6/ | | | | | | | | |
| | | 1,845 | | | | | 89,204 | | 69,523 | 19,681 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

14/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 1,085 acres that will remain in woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-------|-----------|------------|---------|----------|---------|----------|---------|---------|
| Soil : | Land Use and Crop | Acres | : | Production | : | Value | : | Cost | : | : |
| Unit : | Distribution | : | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Return |
| : | : | : | : | : | : | Dollars | Dollars | Dollars | Dollars | Dollars |
| All : | Open Land | 2/ | : | 3/ | : | : | : | : | : | : |
| : | Crops | 1,845 | : | : | : | : | : | : | : | : |
| : | Cotton | 1,660 | : | : | : | : | : | : | : | : |
| : | Corn | 566 | Lbs. Lint | 529 | 299,184 | 0.318286 | 95,226 | 140.82 | 79,704 | 15,522 |
| : | Soybeans | 82 | Bu. | 28 | 2,270 | 1.45 | 3,292 | 28.43 | 2,331 | 961 |
| : | Soybeans (Fol.oats) | 442 | Bu. | 24 | 10,771 | 2.35 | 25,312 | 32.25 | 14,254 | 11,058 |
| : | Small Grains | (231) | Bu. | 15 | 3,580 | 2.35 | 8,413 | 25.20 | 5,821 | 2,592 |
| : | Idle | 312 | Bu. | 36 | 11,212 | 0.95 | 10,651 | 24.95 | 7,784 | 2,867 |
| : | Pasture | 33 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | 225 | Lbs. Beef | 226 | 50,784 | 0.1805 | 9,167 | 32.10 | 7,222 | 1,945 |
| : | Total | 185 | : | : | : | : | : | : | : | : |
| : | | 6/ | : | : | : | : | : | : | : | : |
| : | | 1,845 | : | : | : | : | 152,061 | : | 117,116 | 34,945 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,085 acres that will remain in woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 3
State: Mississippi

| (1) | (2) | (3) | (4) | | (5) | | (6) | | (7) | | (8) | | (9) |
|--------------|-------|--------|---|--------|--|---------|--|--------|--|------|--|-----|------------------------------------|
| Soil Unit | Acres | (3) | Future Without Project (Production in Dollars) | | Future With Project (Production in Dollars) | | Future With Project (Production in Dollars) | | Future With Project (Production in Dollars) | | Future With Project (Production in Dollars) | | Difference in Net Production |
| | | | Gross | Cost | Gross | Net | Gross | Cost | Gross | Cost | Gross | Net | |
| Zone B-2 | | | | | | | | | | | | | |
| All | 1,845 | 89,204 | 69,523 | 19,681 | 152,061 | 117,116 | 34,945 | 15,264 | | | | | |
| Total 1/ | 1,845 | 89,204 | 69,523 | 19,681 | 152,061 | 117,116 | 34,945 | 15,264 | | | | | |

1/ Total area of Zone B-2 reduced by 1,085 acres that will remain in woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) Type of Conversion <u>1/</u> | (2) Total amount | (3) Cost of clearing | (4) Cost of smoothing | (5) Total cost |
|--|------------------------|-------------------------------|--------------------------------|----------------------|
| | <u>Acres</u> | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| <u>Per Acre</u> | | | | |
| W to GC | xx | 55.00 | 12.50 | 67.50 |
| W to P | xx | 55.00 | 5.00 | 60.00 |
| P to GC | xx | xx | 5.00 | 5.00 |
| P to IC | xx | xx | | |
| GC to IC | xx | xx | xx | |
| GC to P | xx | xx | xx | |
| Total per acre | xx | | | |
| <u>Project</u> | | | | |
| W to GC | 368 | 20,240 | 4,600 | 24,840 |
| W to P | 83 | 4,565 | 415 | 4,980 |
| P to GC | 1 | xx | 5 | 5 |
| P to IC | | xx | | |
| GC to IC | | xx | xx | |
| GC to P | | xx | xx | |
| Total project | xx | | | 29,825 |
| Annual amortized value <u>2/</u> | xx | xx | xx | 1,634 |
| Annual mainten- ance | xx | xx | xx | 0 |
| Total annual cost of con- versions | xx | xx | xx | 1,634 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

MISSISSIPPI IRRIGATION & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

TABLE VII
 ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

| Soil Mapping unit and land use | Area | Total cost installation | Annual equivalent installation cost | Annual maintenance cost | Total annual cost |
|--------------------------------|--------------------|-------------------------|-------------------------------------|-------------------------|-------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 580 68 | 10,820 711 | 1,401 92 | 1,248 16 | 2,649 108 |
| 4SU General Crop | 50 | 650 | 84 | 75 | 159 |
| 6 General Crop Pasture | 50 1 | 689 11 | 89 1 | 106 1 | 195 2 |
| Total | 749 | 12,881 | 1,667 | 1,446 | 3,113 |

- 1/ Does not include 10% other land.
 2/ Includes engineering and contingency.
 3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit | : Total | : Zone |
|--|----------|-----------|----------|----------|----------|
| | : Cost | | : Cost | : Cost | :B-2,34% |
| | | | | | :Cost |
| | | | Dollars | Dollars | Dollars |
| Excavation | : Cu.Yd. | : 216,908 | : 0.15 | : 32,536 | : 11,062 |
| Spreading spoil | : Cu.Yd. | : 49,104 | : 0.03 | : 1,473 | : 501 |
| Clearing right-of-way | : Ac. | : 55 | : 75.00 | : 4,125 | : 1,402 |
| Right-of-way easements | : Ac. | : 86 | : 102.90 | : 8,850 | : 3,009 |
| Crossings | : Ft. | : 84 | : 40.00 | : 3,360 | : 1,244 |
| Clearing and snagging | : Ac. | : 10 | : 255.00 | : 2,550 | : 867 |
| | | | | | |
| Total construction cost | : xx | : xx | : xx | : 53,194 | : 18,086 |
| | | | | | |
| Engineering cost | : xx | : xx | : xx | : 5,319 | : 1,808 |
| Contingencies and legal | : xx | : xx | : xx | : 5,319 | : 1,808 |
| | | | | | |
| | | | | | |
| Total installation cost | | | | : 63,832 | : 21,703 |
| | | | | | |
| Annual equivalent - installation cost | | | | : 4,491 | : 1,527 |
| (amortized for 20 years at 3½%) | | | | | |
| Annual maintenance cost | | | | : 2,660 | : 904 |
| | | | | | |
| Total annual cost of required group facilities | | | | : 7,151 | : 2,431 |
| | | | | | |

to derive the annual cost of farm drainage systems. Farm drainage systems and cost were determined for the B-2 Zones only. Present cost of farm drainage systems are expected to prevail under future with project conditions.

Group Drainage Systems and Cost

Group drainage systems and costs were established on a project-wide basis. Any group facilities running through the C Zone were for the purpose of tying-in Zone B-2 with major drainage outlets proposed in the project.

Approximately 366 miles of group drainage ditches are now in place. Channel enlargement on approximately 59 miles of existing ditches; the construction of 25 miles of new ditches; and lowering the gradient on 330 miles of existing ditches will be required to give adequate group facilities for farm drainage systems anticipated with the proposed works of improvement in place.

Table VIII itemizes the cost required to install and maintain intermediate group drainage facilities and appurtenant structures for the B-1 and B-2 Zones, and prorates the cost in the B-2 Zone on the basis of total area in each zone. Installation costs have been amortized for a useful life period of 20 years at $3\frac{1}{2}$ percent. This useful life is based on known life of comparable ditches in this immediate vicinity. Maintenance costs have been added to this amount to derive the total annual cost of group drainage systems. Present costs of group drainage facilities are expected to prevail under future with project conditions.

BENEFITS AND ASSOCIATED COSTS

Net enhancement benefits which will accrue from the project works of improvement will be improvements in farm and group drainage systems, and improved management and better use of technological advancement as a result of improved drainage.

Annual equivalent values of net income from woodland have been determined. These are actual present net income values plus the present worth of deferred net income that would result from the application of better management in the future. No increase in forest income due to the project is expected.

The study on Areas 2 through 7 was made on a reconnaissance basis with very little field investigation except on group drainage which was studied in detail. Only summary tables were prepared in the case of Tables II, III, and IV.

Table IX summarizes for the B-2 Zone--- (1) net annual return and benefits from Table V; (2) annual costs of making land conversions from Table VI; (3) annual costs in installing and maintaining farm and group drainage systems, Tables VII and VIII.

Gross project benefits have been discounted to take into account an anticipated time lag in accrual of increasing benefits after project

installation. Time lags used were 15 years for Areas 4 and 7, and 20 years for Areas 2, 3, 5 and 6. A projected private interest rate of 5 percent was used in arriving at discount factors.

Annual installation and maintenance costs of farm drainage systems and land conversions have been discounted to take into account the following considerations: (1) interest rate 5%, (2) time lag, 10 years for Areas 4 and 7 and 15 years for Areas 2, 3, 5 and 6, and (3) period of analysis 50 years.

Annual installation and maintenance costs of group drainage systems have been discounted to take into account the following considerations: (1) interest rate $3\frac{1}{2}\%$, (2) time lag 5 years for Areas 4 and 7 and 10 years for Areas 2, 3, 5 and 6, and (3) period of analysis 50 years.

The lags described are based upon local experience and present trends in this and other similar areas under conditions which parallel those being evaluated. Instantaneous installation of the project is assumed for discount purposes and is considered to be year zero as a reference point for all associated measure costs and benefits contingent upon project installation. Progress towards realization of full benefits from proposed project works of improvement is expected to be incremental and as follows:

1. Complete installation of group drainage facilities is expected to take 5 years in Areas 4 and 7 and 10 years in Areas 2, 3, 5 and 6 from the last year of project installation.
2. Land conversions and the complete installation of farm drainage systems is expected to occur 5 years after installation of group drainage systems or 10 years after project installation for Areas 4 and 7 and 15 years for Areas 2, 3, 5 and 6.
3. Realization of maximum estimated yields and full benefits is expected to require a 5 year conservation buildup period after land conversions are made and farm drainage systems installed or a total of 15 years for Areas 4 and 7 and 20 years for Areas 2, 3, 5 and 6 after project installation.

A proportionate part of all associated costs and of project benefits is assumed to accrue the first year after instantaneous project installation, to increase uniformly for the period of lag, and to level off at the end of the period of lag and continue at a constant rate to the end of the project life of 50 years.

It is estimated that 85 percent of the gross benefits and associated cost in the B-2 Zone will be derived from the proposed project for Area 2; 80 percent in Areas 3 and 6; 75 percent in Areas 4 and 7; and 65 percent in Area 5. These estimates are based upon field investigation studies that included soil types, land use, slope, cropping patterns, etc.

SUMMARY

The installation of authorized and proposed works of improvement will

reduce the frequency of flooding, and provide adequate farm and group drainage outlets for approximately 164,370 acres of land.

It is anticipated that as a result of works of improvement the areas subject to flooding will be reduced materially and that agricultural development will proceed at a fairly rapid rate.

As a result of agricultural development expected to take place in the project area due to increased drainage facilities, there will be an annual gross benefit of \$266,493; an annual associated cost of \$139,575; with an annual net benefit of \$126,918.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

TABLE I
Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 13,109 | | 10,170 | | 23,279 |
| 2 | | 411 | | 34 | | 445 |
| 2SU | | 34 | | 11 | | 45 |
| 4S | | 45 | | 11 | | 56 |
| 5 | | 68 | | 0 | | 68 |
| 6 | | 3,340 | | 270 | | 3,610 |
| 6S | | 124 | | 221 | | 345 |
| 6SU | | 386 | | 60 | | 446 |
| 6U | | 305 | | 11 | | 316 |
| 14 | | 0 | | 490 | | 490 |
| Subtotal - All Soils | | 17,822 | | 11,273 | | 29,100 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|--------|--------|--------|
| 1 | 22,251 | 24,042 | 46,293 |
| 2 | 828 | 39 | 867 |
| 5 | 33 | 0 | 33 |
| 6 | 2,239 | 648 | 2,887 |
| 6S | 261 | 659 | 920 |
| 6SU | 340 | 0 | 340 |
| 14 | 0 | 1,909 | 1,909 |
| Water | | | 51 |
| Subtotal - All Soils | 25,952 | 27,297 | 53,300 |

Zone C - Zone of no Project Benefit

| | | | |
|----------------------|---|-------|-------|
| 1 | 0 | 460 | 460 |
| 6S | 0 | 240 | 240 |
| 14 | 0 | 2,019 | 2,019 |
| Water | | | 1,004 |
| Subtotal - All Soils | 0 | 2,719 | 3,723 |

| | | | |
|-----------------|--------|--------|--------|
| Total - Project | 43,774 | 41,294 | 86,123 |
|-----------------|--------|--------|--------|

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-----------|------------|-----------|-----------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | <u>2/</u> | | <u>3/</u> | |
| All | Open Land | 17,822 | | | |
| | Crops | 16,041 | | | |
| | Cotton | 3,858 | Lbs. Lint | 327 | 1,260,080 |
| | Corn | 422 | Bu. | 19 | 8,144 |
| | Soybeans | 5,008 | Bu. | 14 | 68,955 |
| | Soybeans (Fol.oats) | (540) | Bu. | 8 | 4,418 |
| | Small Grains | 2,642 | Bu. | 25 | 65,706 |
| | Rice | 1,062 | Cwt. | 25 | 20,550 |
| | Idle | 853 | | | |
| | Pasture | 2,196 | Lbs. Beef | 148 | 325,460 |
| | Other <u>1/</u> | 1,781 | | | |
| | Forest Land | 11,198 | | | |
| | | <u>4/</u> | | | |
| | Total | 29,020 | | | |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Calculated from columns 3 and 6; rounded to nearest unit.
4/ Total does not include 80 acres of dedicated woodlands.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-----------|-------------|------------|-------------|------------|---------------------|--------------------|------------|-----------|
| Soil: | Land use and crop | acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Production | Return |
| Unit: | distribution | | | :Per Acre: | | : Dollars | : Dollars | : Per acre: | Total | : Return |
| : | : | : 2/ | : | : 3/ | : | : Dollars | : Dollars | : Dollars | : Dollars | : Dollars |
| All | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | : 19,435 | : | : | : | : | : | : | : | : |
| : | Cotton | : 17,490 | : | : | : | : | 4/ | : | : | : |
| : | Corn | : 5,016 | : Lbs. Lint | : 422 | : 2,115,410 | : 0.318286 | : | : 116.74 | : 585,568 | : 87,737 |
| : | Soybeans | : 602 | : Bu. | : 25 | : 14,760 | : 1.45 | : | : 25.92 | : 15,604 | : 5,798 |
| : | Soybeans (Fol.Oats) | : 5,604 | : Bu. | : 20 | : 110,377 | : 2.35 | : | : 29.11 | : 163,132 | : 96,254 |
| : | Small Grains | : (1,381) | : Bu. | : 13 | : 17,266 | : 2.35 | : | : 22.62 | : 31,238 | : 9,337 |
| : | Idle | : 2,922 | : Bu. | : 29 | : 85,264 | : 0.95 | : | : 21.43 | : 62,618 | : 18,383 |
| : | Pasture | : 938 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | : 2,408 | : Lbs. Beef | : 180 | : 432,760 | : 0.1805 | : | : 25.41 | : 61,187 | : 16,926 |
| : | Forest Land | : 1,945 | : | : | : | : | : | : | : | : |
| : | | : 4,065 | : | : | : | : 8.99 | : | : 5.74 | : 23,333 | : 13,211 |
| : | | 6/ | : | : | : | : | : | : | : | : |
| : | Total | : 23,500 | : | : | : | : | : 1,190,326 | : | : 942,680 | : 247,646 |
| : | | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 5,600 acres of land that will remain in woods.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-1
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|---------|-----------|------------|-----------|----------|---------------------|----------|--------------------|---------|
| Soil: | Land use and crop | acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | Per Acre | | Dollars | Dollars | Dollars | Total | Return |
| : | : | 2/ | : | 3/ | : | : | : | : | : | : |
| All : | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | 23,500 | : | : | : | : | : | : | : | : |
| : | Cotton | 21,149 | : | : | : | : | : | : | : | : |
| : | Corn | 8,147 | Lbs. Lint | 498 | 4,546,620 | 0.318286 | 1,290,529 | 151.95 | 1,237,937 | 52,592 |
| : | Soybeans | 707 | Bu. | 31 | 21,982 | 1.45 | 31,874 | 30.29 | 21,415 | 10,459 |
| : | Soybeans (Fol.Oats) | 4,654 | Bu. | 24 | 111,110 | 2.35 | 261,108 | 32.59 | 151,674 | 109,434 |
| : | Small Grains | (2,055) | Bu. | 15 | 31,821 | 2.35 | 74,779 | 25.35 | 55,094 | 22,685 |
| : | Idle | 4,140 | Bu. | 37 | 152,906 | 0.95 | 145,261 | 25.46 | 105,404 | 39,857 |
| : | Pasture | 424 | : | : | : | : | : | : | : | : |
| : | Other 1/ | 3,077 | Lbs. Beef | 229 | 703,870 | 0.1805 | 127,049 | 32.45 | 99,849 | 27,200 |
| : | Total | 2,351 | : | : | : | : | : | : | : | : |
| : | : | 6/ | : | : | : | : | : | : | : | : |
| : | : | 23,500 | : | : | : | : | 1,930,600 | : | 1,668,373 | 262,227 |
| : | : | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 5,600 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) : | (2) | (3) | (4) | (5) | (6) |
|--------|---------------------|--------|------------|----------|-----------|
| Soil : | Land Use and Crop | Acres | Production | | |
| Unit : | Distribution | | Unit | Per Acre | Total |
| : | : | 2/ | : | 3/ | : |
| All : | Open Land | 25,952 | : | : | : |
| : | Crops | 23,357 | : | : | : |
| : | Cotton | 3,981 | Lbs. Lint: | 302 | 1,202,630 |
| : | Corn | 667 | Bu. | 18 | 12,310 |
| : | Soybeans | 7,747 | Bu. | 13 | 101,344 |
| : | Soybeans (Fol.oats) | (725) | Bu. | 8 | 5,539 |
| : | Small Grains | 4,312 | Bu. | 24 | 106,250 |
| : | Rice | 1,802 | Cwt. | 25 | 45,050 |
| : | Idle | 1,310 | : | : | : |
| : | Pasture | 3,538 | Lbs.Beef | 145 | 514,220 |
| : | Other 1/ | 2,595 | : | : | : |
| : | Forest Land | 27,218 | : | : | : |
| : | : | 4/ | : | : | : |
| : | Total | 53,170 | : | : | : |
| : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Total does not include 80 acres of dedicated woodland and 51 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 2, Zone B-2

State: Mississippi

SUMMARY - TABLE III B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|----------------------|-----------|-----------|------------|-----------|------------|---------------------|--------------------|-----------|-----------|
| Soil : | Land Use and Crop | Acres : | Unit : | Production | Total : | Per Unit : | Value of Production | Cost of Production | Net | |
| Unit : | Distribution | : | : | Per Acre : | Total : | Per Unit : | Total : | Per Acre : | Total : | Return |
| : | : | : | : | : | : | Dollars : | Dollars : | Dollars : | Dollars : | Dollars : |
| All : | Open Land | 2/ | : | 3/ | : | : | : | : | : | : |
| : | Crops | 29,748 | : | : | : | : | : | : | : | : |
| : | Cotton | 26,774 | : | : | : | : | : | : | : | : |
| : | Corn | 5,680 | Lbs. Lint | 388 | 2,205,200 | 0.318286 | 701,884 | 109.04 | 619,347 | 82,537 |
| : | Soybeans | 1,023 | Bu. | 24 | 24,186 | 1.45 | 35,070 | 25.35 | 25,933 | 9,137 |
| : | Soybeans (Fed. oats) | 9,398 | Bu. | 19 | 177,903 | 2.35 | 418,072 | 28.20 | 265,024 | 153,048 |
| : | Small Grains | (2,375) | Bu. | 12 | 29,470 | 2.35 | 69,254 | 21.91 | 52,036 | 17,218 |
| : | Idle | 5,185 | Bu. | 29 | 150,756 | 0.95 | 143,218 | 21.43 | 111,115 | 32,103 |
| : | Pasture | 1,509 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | 3,979 | Lbs. Beef | 175 | 695,430 | 0.1805 | 125,525 | 24.64 | 98,043 | 27,482 |
| : | Forest Land | 2,974 | : | : | : | : | : | : | : | : |
| : | | 9,565 | : | : | : | 8.99 | 85,989 | 5.74 | 54,903 | 31,086 |
| : | Total | 6/ 29,313 | : | : | : | : | 1,579,012 | : | 1,226,401 | 352,611 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 13,936 acres of land that will remain in woods and 51 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-----------|------------|------------|-----------|----------|---------------------|--------------------|-----------|---------|
| Soil : | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Cost | Net |
| Unit : | Distribution | | | Per Acre | | Dollars | Dollars | Per Acre | Total | Return |
| All : | Open Land | 21 | | 37 | | Dollars | Dollars | Dollars | Dollars | Dollars |
| : | Crops | 39,313 | | | | | | | | |
| : | Cotton | 35,382 | | | | | | | | |
| : | Corn | 11,781 | Lbs. Lint: | 483 | 5685,220 | 0.318286 | 1,809,526 | 129.60 | 1,526,818 | 282,708 |
| : | Soybeans | 1,269 | Bu. | 30 | 38,274 | 1.45 | 55,497 | 29.51 | 37,448 | 18,049 |
| : | Soybeans (Fol.oats) | 8,666 | Bu. | 24 | 205,381 | 2.35 | 482,645 | 32.58 | 282,338 | 200,307 |
| : | Small Grains | (3,487) | Bu. | 15 | 53,144 | 2.35 | 124,888 | 25.55 | 89,093 | 35,795 |
| : | Idle | 7,568 | Bu. | 37 | 276,944 | 0.95 | 263,097 | 25.45 | 192,606 | 70,491 |
| : | Pasture | 708 | | | | | | | | |
| : | Other 1/ | 5,390 | Lbs. Beef | 224 | 1,204,860 | 0.1805 | 217,477 | 31.84 | 171,618 | 45,859 |
| : | | 3,931 | | | | | | | | |
| : | Total | 6/ 39,313 | | | | | 2,953,130 | | 2,299,921 | 653,209 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 13,936 acres of land that will remain in woods and 51 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

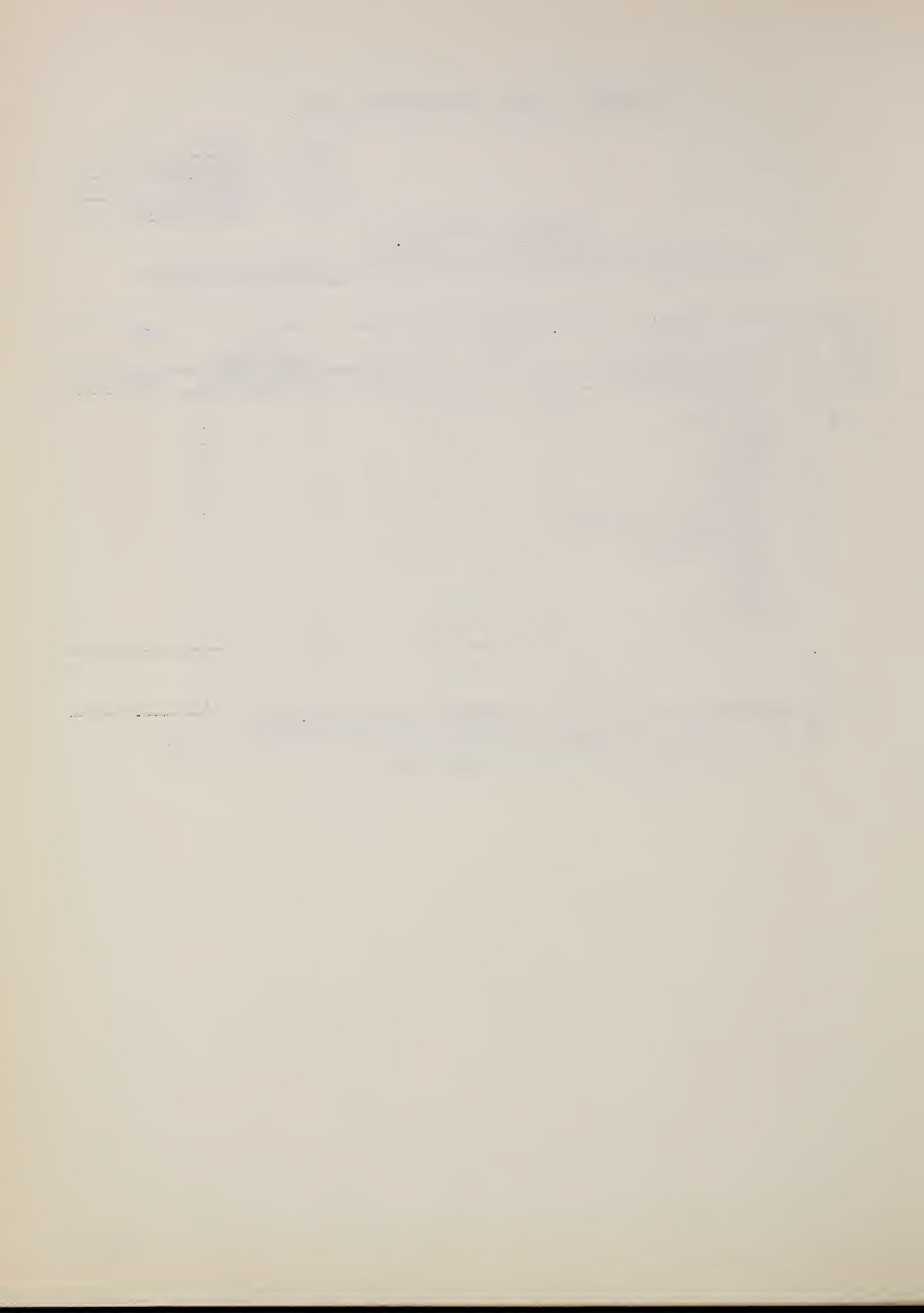
Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

SUMMARY - TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-------|------------|----------|-------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| : | : | : | : | : | : |
| All | Open Land | : | : | : | : |
| : | Crops | : | : | : | : |
| : | Cotton | : | : | : | : |
| : | Corn | : | : | : | : |
| : | Soybeans | : | : | : | : |
| : | Soybeans (Fol.oats) | : | : | : | : |
| : | Small Grains | : | : | : | : |
| : | Idle | : | : | : | : |
| : | Pasture | : | : | : | : |
| : | Other <u>1/</u> | : | : | : | : |
| : | Forest Land | : | : | : | : |
| : | : | : | : | : | : |
| : | Total <u>2/</u> | 0 | : | : | : |
| : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total does not include 2,719 acres of land that will remain in woods and 1,004 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 2

State: Mississippi

SUMMARY - TABLE III C

(Zone of no Project Benefit) 2/

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|----------------------|-------|------|------------|-------|----------|---------------------|--------------------|---------|---------|
| Soil : | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Total | Net |
| Unit : | Distribution | | | Per Acre | | | Dollars | Per Acre | Dollars | return |
| All : | Open Land | | | | | | Dollars | Dollars | Dollars | Dollars |
| : | Crops | | | | | | | | | |
| : | Cotton | | | | | | | | | |
| : | Corn | | | | | | | | | |
| : | Soybeans | | | | | | | | | |
| : | Soybeans (Fol. oats) | | | | | | | | | |
| : | Small Grains | | | | | | | | | |
| : | Idle | | | | | | | | | |
| : | Pasture | | | | | | | | | |
| : | Other 1/ | | | | | | | | | |
| : | Total | 31 | | | | | | | | |
| : | | 0 | | | | | | | | |
| : | | | | | | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "With project" and "Without project" conditions; no Table IV C required.

3/ Total does not include 2,719 acres of land that will remain in woods and 1,004 acres of water area.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 2
State: Mississippi

| (1) Soil Unit | (2) Acres | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) Difference in Net Production |
|---------------------|--------------|-----------|-----------|---|-----------|-----------|-----------|--|---------|------|-----|------|-----|---|
| | | Gross | Cost | Future Without Project (Production in Dollars) | Net | Gross | Cost | Future With Project (Production in Rollars) | Net | Cost | Net | Cost | Net | |
| Zones B-2 and C | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| All | : | 1,579,012 | 1,226,401 | 352,611 | 2,953,130 | 2,299,921 | 653,209 | 300,598 | : | : | : | : | : | : |
| Total | 1/ | 39,313 | 1,579,012 | 1,226,401 | 352,611 | 2,953,130 | 2,299,921 | 653,209 | 300,598 | : | : | : | : | : |

1/ Total area reduced by 16,655 acres that will remain in woodland and 1,055 acres of water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) | : | (2) | : | (3) | : | (4) | : | (5) |
|----------------------|---|--------------|---|----------------|---|----------------|---|----------------|
| Type of | : | Total | : | Cost | : | Cost | : | Total |
| Conversion <u>1/</u> | : | amount | : | of | : | of | : | cost |
| | : | | : | clearing | : | smoothing | : | |
| | : | <u>Acres</u> | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| <u>Per Acre</u> | : | | : | | : | | : | |
| W to GC | : | xx | : | 55 | : | 12.50 | : | 67.50 |
| W to IC | : | xx | : | | : | | : | |
| W to P | : | xx | : | 55 | : | 5.00 | : | 60.00 |
| P to GC | : | xx | : | xx | : | | : | 5.00 |
| P to IC | : | xx | : | xx | : | | : | |
| GC to IC | : | xx | : | xx | : | xx | : | |
| GC to P | : | xx | : | xx | : | xx | : | |
| Total per acre | : | xx | : | | : | | : | |
| <u>Project</u> | : | | : | | : | | : | |
| W to GC | : | 7,205 | : | 396,275 | : | 90,062 | : | 486,337 |
| W to IC | : | | : | | : | | : | |
| W to P | : | 1,403 | : | 77,165 | : | 7,015 | : | 84,180 |
| P to GC | : | | : | xx | : | | : | |
| P to IC | : | | : | xx | : | | : | |
| GC to IC | : | | : | xx | : | xx | : | |
| GC to P | : | | : | xx | : | xx | : | |
| Total project | : | xx | : | | : | | : | 570,517 |
| Annual amortized | : | xx | : | xx | : | xx | : | 31,253 |
| value <u>2/</u> | : | | : | | : | | : | |
| Annual mainten- | : | | : | | : | | : | |
| ance | : | xx | : | xx | : | xx | : | 0 |
| Total annual | : | | : | | : | | : | |
| cost of con- | : | | : | | : | | : | |
| versions | : | xx | : | xx | : | xx | : | 31,253 |

1/ W--woodland; GC--general dry farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 2, Zone B-2
State: Mississippi

TABLE VII

ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

| Soil Mapping unit and Land use | Area | Total Cost | Annual equivalent installation cost | Annual maintenance cost | Total annual cost |
|--------------------------------|--------|------------|-------------------------------------|-------------------------|-------------------|
| | 1/ | 2/ | | | |
| | Acres | Dollars | Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 14,644 | 273,183 | 35,377 | 31,521 | 66,898 |
| | 1,847 | 19,329 | 2,503 | 446 | 2,949 |
| 2 General Crop Pasture | 228 | 3,631 | 470 | 419 | 889 |
| | 8 | 83 | 11 | 2 | 13 |
| 5 General Crop | 4 | 52 | 7 | 6 | 13 |
| 6 General Crop Pasture | 862 | 11,878 | 1,538 | 1,827 | 3,365 |
| | 21 | 221 | 29 | 17 | 46 |
| 6S General Crop Pasture | 233 | 3,211 | 416 | 494 | 910 |
| | 7 | 74 | 10 | 6 | 16 |
| 6SU General Crop Pasture | 88 | 1,213 | 157 | 187 | 344 |
| | 3 | 31 | 4 | 2 | 6 |
| Total | 17,945 | 312,906 | 40,522 | 34,927 | 75,449 |

- 1/ Does not include 10% other lands.
2/ Includes construction engineering and contingency.
3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : | Unit | : | Amount | : | Unit | : | Total | : | Cost |
|--|---|--------|---|-----------|---|---------|---|---------|---|---------|
| | : | | : | | : | Cost | : | Cost | : | ZoneB-2 |
| | : | | : | | : | | : | | : | 65% |
| | : | | : | | : | Dollars | : | Dollars | : | Dollars |
| Excavation | : | Cu.Yd. | : | 1,211,395 | : | 0.15 | : | 181,709 | : | 118,111 |
| Spreading spoil | : | Cu.Yd. | : | 676,432 | : | 0.03 | : | 20,293 | : | 13,190 |
| Clearing right-of-way | : | Ac. | : | 86 | : | 75.00 | : | 6,450 | : | 4,192 |
| Right-of-way easements | : | Ac. | : | 124 | : | 81.05 | : | 10,050 | : | 6,532 |
| Crossings | : | Ft. | : | 126 | : | 40.00 | : | 5,040 | : | 3,276 |
| Clearing and snagging | : | Ac. | : | 292 | : | 300.00 | : | 87,600 | : | 56,940 |
| | : | | : | | : | | : | | : | |
| Total construction cost | : | xx | : | xx | : | xx | : | 311,142 | : | 202,243 |
| | : | | : | | : | | : | | : | |
| Engineering cost | : | xx | : | xx | : | xx | : | 31,114 | : | 20,224 |
| Contingencies and legal | : | xx | : | xx | : | xx | : | 31,114 | : | 20,224 |
| | : | | : | | : | | : | | : | |
| Total installation cost | : | | : | | : | | : | 373,370 | : | 242,691 |
| | : | | : | | : | | : | | : | |
| Annual equivalent - installation cost | : | | : | | : | | : | | : | |
| (amortized for 20 years at $3\frac{1}{2}\%$) | : | | : | | : | | : | 26,270 | : | 17,076 |
| Annual maintenance cost | : | | : | | : | | : | 15,557 | : | 10,112 |
| | : | | : | | : | | : | | : | |
| Total annual cost of required group facilities | : | | : | | : | | : | 41,827 | : | 27,188 |
| | : | | : | | : | | : | | : | |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 2, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | : | (2) | : | (3) | : | (4) |
|--|---|----------------|---|-------------------|---|--------------------------------|
| Item | : | Total | : | Discounted Amount | : | Proposed Project, 80% of total |
| | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| 1. Net return with project | : | 653,209 | : | | : | |
| 2. Net return without project | : | 352,611 | : | <u>1/</u> | : | |
| 3. Gross benefit to project | : | 300,598 | : | 186,753 | : | 149,402 |
| | : | | : | | : | |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 40,522 | : | | : | |
| b. Maintenance cost | : | 34,927 | : | <u>2/</u> | : | |
| c. Total | : | 75,449 | : | 52,832 | : | 42,265 |
| | : | | : | | : | |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 17,076 | : | | : | |
| b. Maintenance cost | : | 10,112 | : | <u>3/</u> | : | |
| c. Total | : | 27,188 | : | 22,575 | : | 18,060 |
| | : | | : | | : | |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 31,253 | : | | : | |
| b. Maintenance cost | : | 0 | : | <u>2/</u> | : | |
| c. Total | : | 31,253 | : | 21,884 | : | 17,507 |
| | : | | : | | : | |
| <hr/> | | | | | | |
| <u>1/</u> Discount factor for 20 years @ 5% - (.62127). | | | | | | |
| <u>2/</u> Discount factor for 15 years @ 5% - (.70023). | | | | | | |
| <u>3/</u> Discount factor for 10 years @ 3½% - (.83033). | | | | | | |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

| | |
|----------|---------------|
| Basin: | Yazoo |
| Project: | Big Sunflower |
| Reach: | Area 3 |
| State: | Mississippi |

TABLE I
Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|-----------------|---|-------------------|---|------------------|
| 1 | | 2,366 | | 3,112 | | 5,478 |
| 6S | | 0 | | 302 | | 302 |
| Subtotal - All Soils | | 2,366 | | 3,414 | | 5,780 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-------|-------|-------|
| 1 | 957 | 1,030 | 1,987 |
| 1S | 68 | 271 | 339 |
| 4SU | 126 | 55 | 181 |
| 6S | 0 | 39 | 39 |
| 6SU | 48 | 126 | 174 |
| 14 | 0 | 210 | 210 |
| Subtotal - All Soils | 1,199 | 1,731 | 2,930 |
| Total - Project | 3,565 | 5,145 | 8,710 |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-------|------------|----------|---------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | 3/ | |
| All | Open Land | 2,366 | | | |
| | Crops | 2,129 | | | |
| | Cotton | 426 | Lbs. Lint: | 285 | 121,410 |
| | Corn | 128 | Bu. | 14 | 1,792 |
| | Soybeans | 596 | Bu. | 13 | 7,748 |
| | Soybeans (Fol.oats) | (64) | Bu. | 8 | 512 |
| | Small Grains | 447 | Bu. | 26 | 11,622 |
| | Rice | 213 | Cwt. | 25 | 5,325 |
| | Idle | 106 | | | |
| | Pasture | 213 | Lbs. Beef: | 139 | 29,607 |
| | Other 1/ | 237 | | | |
| | Forest Land | 3,414 | | | |
| | Total | 5,780 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|---------------------|-------|------------|------------|---------|----------|---------------------|----------|--------------------|--------|
| Soil | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit | Distribution | | | Per Acre | | Dollars | Dollars | Dollars | Total | Return |
| All | Open Land | 2/ | | 3/ | | | | | | |
| | Crops | 2,878 | | | | | | | | |
| | Cotton | 2,591 | | | | | | | | |
| | Corn | 583 | Lbs. Lint: | 376 | 219,329 | 0.318286 | 69,809 | 106.16 | 61,891 | 7,918 |
| | Soybeans | 128 | Bu. | 18 | 2,225 | 1.45 | 3,371 | 21.54 | 2,757 | 614 |
| | Soybeans (Fol.oats) | 751 | Bu. | 18 | 13,595 | 2.35 | 31,948 | 27.30 | 20,502 | 11,446 |
| | Small Grains | (435) | Bu. | 12 | 5,224 | 2.35 | 12,276 | 21.90 | 9,526 | 2,750 |
| | Idle | 667 | Bu. | 28 | 18,728 | 0.95 | 17,792 | 20.92 | 13,954 | 3,838 |
| | Pasture | 128 | | | | 5/ | | | | |
| | Other 1/ | 334 | Lbs. Beef | 176 | 58,620 | 0.1805 | 10,581 | 24.79 | 8,280 | 2,301 |
| | Forest Land | 287 | | | | | | | | |
| | | 1,161 | | | | 14.37 | 16,684 | 8.54 | 9,915 | 6,769 |
| | Total | 6/ | | | | | | | | |
| | | 4,039 | | | | | 162,461 | | 126,825 | 35,636 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,741 acres that will remain in woods.

MISSISSIPPI IVALS & TRUTHS STUDY

Basin: Yazoo

Project: Big Sunflower

iwach: Arca 3, Zone B-1

State: Mississippi

SUMMARY - TABLE IV

('Zone for Drainage and Flood Control Calculations')

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COST, AND NET RETURNS: FUTURE CONDITIONS WITH FLUCT (Based on projected prices)

[illegible]

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreage.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,741 acres that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|----------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | 2/ | | 3/ | |
| | Crops | 1,199 | | | |
| | Cotton | 1,078 | | | |
| | Corn | 216 | Lbs. Lint | 345 | 74,562 |
| | Soybeans | 65 | Bu. | 17 | 1,083 |
| | Soybeans (Fol.oats) | 349 | Bu. | 15 | 5,208 |
| | Small Grains | (38) | Bu. | 9 | 351 |
| | Rice | 215 | Bu. | 27 | 5,709 |
| | Idle | 86 | Cwt. | 25 | 2,150 |
| | Pasture | 49 | | | |
| | Other 1/ | 98 | Lbs. Beef | 144 | 14,154 |
| | Forest Land | 121 | | | |
| | | 1,636 | | | |
| | Total | 4/ 2,835 | | | |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include 95 acres of dedicated woodland.

Basin: Yazoo
Project: Big Sunflower
Leach: Area 3, Zone B-2
State: Mississippi

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-------|-----------|------------|---------|----------|---------|----------|---------|------------|
| Soil : | Land Use and Crop | Acres | | Production | | Value | | Cost | | |
| Unit : | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Net return |
| | | | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| All | Open Land | 21 | | 37 | | | | | | |
| | Crops | 1,343 | | | | | | | | |
| | Cotton | 1,209 | | | | | | | | |
| | Corn | 315 | Lbs. Lint | 460 | 145,155 | 0.318286 | 46,201 | 126.27 | 39,775 | 6,426 |
| | Soybeans | 59 | Bu. | 21 | 1,252 | 1.45 | 1,815 | 23.24 | 1,371 | 444 |
| | Soybeans (Fcl.oats) | 332 | Bu. | 20 | 6,506 | 2.35 | 15,289 | 28.93 | 9,605 | 5,684 |
| | Small Grains | (186) | Bu. | 13 | 2,341 | 2.35 | 5,501 | 22.63 | 4,209 | 1,292 |
| | Idle | 306 | Bu. | 29 | 8,890 | 0.95 | 8,446 | 21.42 | 6,555 | 1,891 |
| | Pasture | 54 | | | | 5/ | | | | |
| | Other 1/ | 143 | Lbs. Beef | 184 | 26,249 | 0.1805 | 4,738 | 26.02 | 3,721 | 1,017 |
| | Forest land | 134 | | | | | | | | |
| | | 502 | | | | 14.37 | 7,214 | 8.54 | 4,287 | 2,927 |
| | Total | 6/ | | | | | | | | |
| | | 1,845 | | | | | 89,204 | | 69,523 | 19,681 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/2 Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 1,085 acres that will remain in woodland.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|----------|-----------|------------|---------|-----------|-----------|---------------|-----------|-----------|
| Soil : | Land Use and Crop | Acres : | Unit : | Production | Total | Per Unit | Value | Of Production | Cost | Net |
| Unit : | Distribution | : | : | Per Acre : | : | Dollars : | Dollars : | Per Acre : | Total | Return |
| All : | Open Land | 2/ | : | 3/ | : | Dollars : | Dollars : | Dollars : | Dollars : | Dollars : |
| : | Crops | 1,845 | : | : | : | : | : | : | : | : |
| : | Cotton | 1,660 | : | : | : | : | : | : | : | : |
| : | Corn | 566 | Lbs. Lint | 529 | 299,184 | 0.318286 | 95,226 | 140.82 | 79,704 | 15,522 |
| : | Soybeans | 82 | Bu. | 28 | 2,270 | 1.45 | 3,292 | 28.43 | 2,331 | 961 |
| : | Soybeans (Fol.oats) | 442 | Bu. | 24 | 10,771 | 2.35 | 25,312 | 32.25 | 14,254 | 11,058 |
| : | Small Grains | (231) | Bu. | 15 | 3,580 | 2.35 | 8,413 | 25.20 | 5,821 | 2,592 |
| : | Idle | 312 | Bu. | 36 | 11,212 | 0.95 | 10,651 | 24.95 | 7,784 | 2,867 |
| : | Pasture | 33 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | 225 | Lbs. Beef | 226 | 50,784 | 0.1805 | 9,167 | 32.10 | 7,222 | 1,945 |
| : | | 185 | : | : | : | : | : | : | : | : |
| : | Total | 6/ 1,845 | : | : | : | : | 152,061 | : | 117,116 | 34,945 |
| : | | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,085 acres that will remain in woodland.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 3
State: Mississippi

| (1) Soil Unit | (2) Acres | (3) Future Without Project (Production in Dollars) | | (4) Future With Project (Production in Dollars) | | (5) Difference in Net Production | |
|------------------|--------------|--|--------|---|---------|---|--------|
| | | Gross | Net | Gross | Net | Gross | Net |
| Zone B-2 | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| All | : | 89,204 | 19,681 | 152,061 | 117,116 | 34,945 | 15,264 |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| Total 1/ | : | 89,204 | 19,681 | 152,061 | 117,116 | 34,945 | 15,264 |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : |

1/ Total area of Zone B-2 reduced by 1,085 acres that will remain in woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

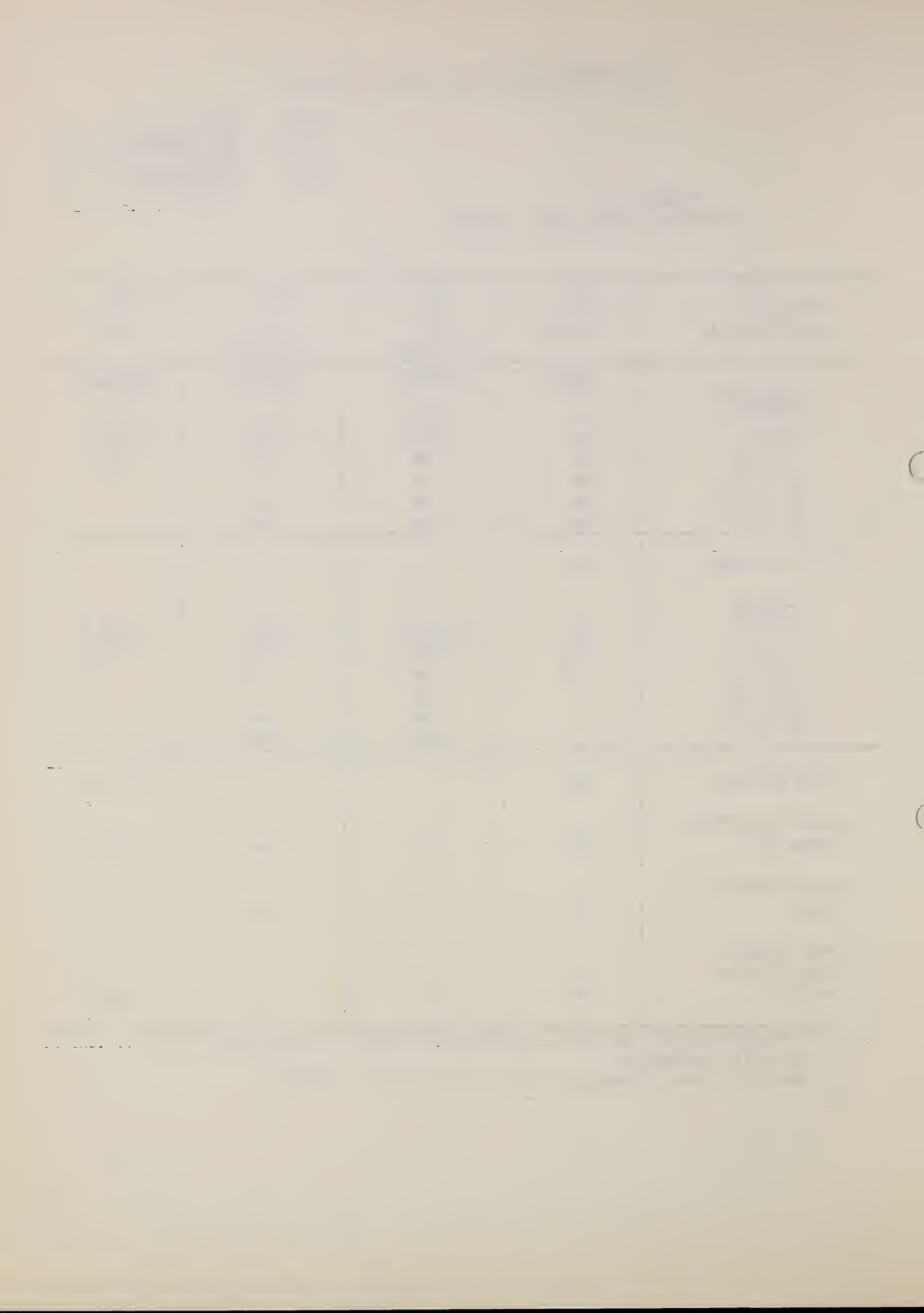
Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) | : | (2) | : | (3) | : | (4) | : | (5) |
|----------------------|---|--------------|---|----------------|---|----------------|---|----------------|
| Type of | : | Total | : | Cost | : | Cost | : | Total |
| Conversion <u>1/</u> | : | amount | : | of | : | of | : | cost |
| | : | | : | clearing | : | smoothing | : | |
| | : | <u>Acres</u> | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| Per Acre | : | | : | | : | | : | |
| W to GC | : | xx | : | 55.00 | : | 12.50 | : | 67.50 |
| W to P | : | xx | : | 55.00 | : | 5.00 | : | 60.00 |
| P to GC | : | xx | : | xx | : | 5.00 | : | 5.00 |
| P to IC | : | xx | : | xx | : | | : | |
| GC to IC | : | xx | : | xx | : | xx | : | |
| GC to P | : | xx | : | xx | : | xx | : | |
| Total per acre | : | xx | : | | : | | : | |
| Project | : | | : | | : | | : | |
| W to GC | : | 368 | : | 20,240 | : | 4,600 | : | 24,840 |
| W to P | : | 83 | : | 4,565 | : | 415 | : | 4,980 |
| P to GC | : | 1 | : | xx | : | 5 | : | 5 |
| P to IC | : | | : | xx | : | | : | |
| GC to IC | : | | : | xx | : | xx | : | |
| GC to P | : | | : | xx | : | xx | : | |
| Total project | : | xx | : | | : | | : | 29,825 |
| Annual amortized | : | | : | | : | | : | |
| value <u>2/</u> | : | xx | : | xx | : | xx | : | 1,634 |
| Annual mainten- | : | | : | | : | | : | |
| ance | : | xx | : | xx | : | xx | : | 0 |
| Total annual | : | | : | | : | | : | |
| cost of con- | : | | : | | : | | : | |
| versions | : | xx | : | xx | : | xx | : | 1,634 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).



MISSISSIPPI IRRIGATION & TRIBUTARIES STUDY

TABLE VII

ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

Basin: Yazoo
Project: Big Sunflower
Reach: Area 3, Zone B-2
State: Mississippi

| Soil Mapping unit and land use | Area | Total cost installation | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|--------------------|-------------------------------|--|------------------------------------|-------------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 580 68 | 10,820 711 | 1,401 92 | 1,248 16 | 2,649 108 |
| 4SU General Crop | 50 | 650 | 84 | 75 | 159 |
| 6 General Crop Pasture | 50 1 | 689 11 | 89 1 | 106 1 | 195 2 |
| Total | 749 | 12,881 | 1,667 | 1,446 | 3,113 |

- 1/ Does not include 10% other land.
2/ Includes engineering and contingency.
3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit | : Total | : Zone |
|--|----------|-----------|-----------|-----------|----------|
| | : : | : : | : Cost | : Cost | :B-2,34% |
| | : : | : : | : : | : : | :Cost |
| | : : | : : | : Dollars | : Dollars | :Dollars |
| Excavation | : Cu.Yd. | : 216,908 | : 0.15 | : 32,536 | : 11,062 |
| Spreading spoil | : Cu.Yd. | : 49,104 | : 0.03 | : 1,473 | : 501 |
| Clearing right-of-way | : Ac. | : 55 | : 75.00 | : 4,125 | : 1,402 |
| Right-of-way easements | : Ac. | : 86 | : 102.90 | : 8,850 | : 3,009 |
| Crossings | : Ft. | : 84 | : 40.00 | : 3,660 | : 1,244 |
| Clearing and snagging | : Ac. | : 10 | : 255.00 | : 2,550 | : 867 |
| | : : | : : | : : | : : | : : |
| Total construction cost | : xx | : xx | : xx | : 53,194 | : 18,086 |
| | : : | : : | : : | : : | : : |
| Engineering cost | : xx | : xx | : xx | : 5,319 | : 1,808 |
| Contingencies and legal | : xx | : xx | : xx | : 5,319 | : 1,808 |
| | : : | : : | : : | : : | : : |
| Total installation cost | | | | : 63,832 | : 21,703 |
| | | | | : : | : : |
| Annual equivalent - installation cost (amortized for 20 years at 3½%) | | | | : 4,491 | : 1,527 |
| | | | | : : | : : |
| Annual maintenance cost | | | | : 2,660 | : 904 |
| | | | | : : | : : |
| Total annual cost of required group facilities | | | | : 7,151 | : 2,431 |
| | | | | : : | : : |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 3, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | : | (2) | : | (3) | : | (4) |
|-------------------------------|---|---------|---|------------|---|-------------------|
| Item | : | Total | : | Discounted | : | Proposed Project, |
| | : | Dollars | : | Amount | : | 75% of Total |
| | : | | : | Dollars | : | Dollars |
| 1. Net return with project | : | 34,945 | : | | : | |
| 2. Net return without project | : | 19,681 | : | 1/ | : | |
| 3. Gross benefit to project | : | 15,264 | : | 9,483 | : | 7,112 |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 1,667 | : | | : | |
| b. Maintenance cost | : | 1,446 | : | 2/ | : | |
| c. Total | : | 3,113 | : | 2,180 | : | 1,635 |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 1,527 | : | | : | |
| b. Maintenance cost | : | 904 | : | 3/ | : | |
| c. Total | : | 2,431 | : | 2,019 | : | 1,514 |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 1,634 | : | | : | |
| b. Maintenance cost | : | 0 | : | 2/ | : | |
| c. Total | : | 1,634 | : | 1,144 | : | 858 |

1/ Discount factor for 20 years @ 5% (.62127).

2/ Discount factor for 15 years @ 5% (.70023).

3/ Discount factor for 10 years @ 3 1/2% (.83033).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4
 State: Mississippi

TABLE I
 Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : : | Open (Acres) | : : | Wooded (Acres) | : : | Total (Acres) |
|----------------------|--------|-----------------|--------|-------------------|--------|------------------|
| 1 | | 739 | | 1,350 | | 2,089 |
| 1S | | 573 | | 415 | | 988 |
| 1SU | | 502 | | 921 | | 1,423 |
| 1U | | 187 | | 20 | | 207 |
| 2 | | 59 | | 0 | | 59 |
| 2U | | 207 | | 89 | | 296 |
| 4S | | 79 | | 20 | | 99 |
| 5 | | 59 | | 0 | | 59 |
| Subtotal - All Soils | | 2,405 | | 2,815 | | 5,220 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-----|-------|-------|
| 1 | 516 | 1,623 | 2,139 |
| 1S | 188 | 335 | 523 |
| 1SU | 79 | 282 | 361 |
| 2S | 30 | 59 | 89 |
| 4 | 99 | 0 | 99 |
| 4S | 30 | 79 | 109 |
| 14 | 0 | 1,200 | 1,200 |
| Subtotal - All Soils | 942 | 2,578 | 4,520 |

Zone C - Zone of no Project Benefit

| | | |
|----------------------|-----|-----|
| 1 | 490 | 490 |
| 14 | 40 | 40 |
| Subtotal - All Soils | 530 | 530 |

| | | | |
|-----------------|-------|-------|--------|
| Total - Project | 3,347 | 6,923 | 10,270 |
|-----------------|-------|-------|--------|

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of the country and the
state of the economy.

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MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|--------------------|-------|------------|----------|---------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | 2,405 | | 3/ | |
| | Crops | 2,164 | | | |
| | Cotton | 96 | Lbs. Lint: | 491 | 47,180 |
| | Corn | 330 | Bu. | 19 | 6,382 |
| | Soybeans | 326 | Bu. | 17 | 5,489 |
| | Soybeans(Fol.oats) | (48) | Bu. | 10 | 501 |
| | Small Grains | 295 | Bu. | 30 | 8,918 |
| | Idle | 145 | | | |
| | Pasture | 972 | Lbs. Beef | 153 | 148,640 |
| | Other 1/ | 241 | | | |
| | Forest Land | 2,815 | | | |
| | Total | 5,220 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on project prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|----------------------|----------|-----------|------------|---------|----------|---------------------|--------------------|--------|---------|
| Soil | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Cost of Production | Net | |
| Unit | Distribution | | | Per Acre | | Dollars | Dollars | Per Acre | Total | return |
| | | | | | | | | | | Dollars |
| All | Open Land | 2/ | | 3/ | | | | | | |
| | Crops | 2,828 | | | | | | | | |
| | Cotton | 2,545 | | | | | | | | |
| | Corn | 102 | Lbs. Lint | 658 | 67,140 | 0.318286 | 21,370 | 163.33 | 16,660 | 4,710 |
| | Soybeans | 388 | Bu. | 26 | 9,994 | 1.45 | 14,491 | 26.02 | 10,096 | 4,395 |
| | Soybeans (Fol. oats) | 383 | Bu. | 24 | 9,181 | 2.35 | 21,575 | 30.96 | 11,858 | 9,717 |
| | Small Grains | (56) | Bu. | 16 | 872 | 2.35 | 2,049 | 24.74 | 1,385 | 664 |
| | Idle | 345 | Bu. | 33 | 11,544 | 0.95 | 10,967 | 23.66 | 8,163 | 2,804 |
| | Pasture | 170 | | | | 5/ | | | | |
| | Other 1/ | 1,157 | Lbs. Beef | 197 | 227,710 | 0.1805 | 41,102 | 27.88 | 32,257 | 8,845 |
| | Forest Land | 283 | | | | | | | | |
| | | 1,202 | | | | 9.03 | 10,854 | 6.02 | 7,236 | 3,618 |
| | Total | 6/ 4,030 | | | | | 122,408 | | 87,655 | 34,753 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,190 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-1
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|--------------------|-------|------------|------------|---------|----------|---------------------|----------|--------------------|--------|
| Soil: | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | Distribution | | | Per Acre | | Dollars | Dollars | Dollars | Dollars | Return |
| All | Open Land | 2/ | | 3/ | | | | | | |
| | Crops | 4,030 | | | | | | | | |
| | Cotton | 3,626 | | | | | | | | |
| | Corn | 593 | Lbs. Lint: | 558 | 330,860 | 0.318286 | 105,308 | 144.31 | 85,576 | 19,732 |
| | Soybeans | 536 | Bu. | 30 | 16,022 | 1.45 | 23,232 | 29.42 | 15,769 | 7,463 |
| | Soybeans(Fol.oats) | 537 | Bu. | 27 | 14,291 | 2.35 | 33,584 | 33.43 | 16,341 | 17,243 |
| | Small Grains | (359) | Bu. | 17 | 6,160 | 2.35 | 14,476 | 26.55 | 9,531 | 4,945 |
| | Idle | 539 | Bu. | 38 | 20,482 | 0.95 | 19,458 | 25.97 | 13,998 | 5,460 |
| | Pasture | 72 | | | | | | | | |
| | Other 1/ | 1,349 | Lbs. Beef | 233 | 314,430 | 0.1805 | 56,755 | 32.95 | 44,450 | 12,305 |
| | | 404 | | | | | | | | |
| | Total | 6/ | | | | | | | | |
| | | 4,030 | | | | | 252,813 | | 185,665 | 67,148 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parentactical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6, rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Composite value of veal calves and herd culls (beef cattle).
- 6/ Total does not include 1,190 acres of land that will remain in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|----------------------|-------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | 3/ | |
| All | Open Land | 942 | | | |
| | Crops | 847 | | | |
| | Cotton | 34 | Lbs. Lint | 568 | 19,300 |
| | Corn | 97 | Bu. | 23 | 2,198 |
| | Soybeans | 133 | Bu. | 16 | 2,150 |
| | Soybeans (Fol. oats) | (14) | Bu. | 9 | 129 |
| | Small Grains | 113 | Bu. | 28 | 3,152 |
| | Idle | 85 | | | |
| | Pasture | 385 | Lbs. Beef | 152 | 58,580 |
| | Other 1/ | 95 | | | |
| | Forest Land | 3,578 | | | |
| | | | | | |
| | Total | 4,520 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 4, Zone B-2

State: Mississippi

SUMMARY - TABLE III B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|--------------------|-------|-----------|------------|---------|---------------|---------|---------------|---------|---------|
| Soil : | Land Use and Crop | Acres | | Production | Value | of Production | Cost | of Production | Return | |
| Unit : | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Return |
| | | | | | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| All : | Open Land | 2/ | | 3/ | | | | | | |
| | Crops | 1,188 | | | | | | | | |
| | Cotton | 1,068 | | | | | | | | |
| | Corn | 38 | Lbs. Lint | 773 | :29,380 | :0.318286 | 9,351 | :183.22 | :6,962 | :2,389 |
| | Soybeans | 122 | Bu. | 29 | :3,534 | :1.45 | 5,124 | :27.91 | :3,405 | :1,719 |
| | Soybeans(Fol.oats) | 167 | Bu. | 23 | :3,905 | :2.35 | 9,177 | :31.04 | :5,184 | :3,993 |
| | Small Grains | (19) | Bu. | 14 | :267 | :2.35 | 627 | :23.98 | :456 | :171 |
| | Idle | 143 | Bu. | 31 | :4,380 | :0.95 | 4,161 | :22.24 | :3,180 | :981 |
| | Pasture | 107 | | | | 5/ | | | | |
| | Other 1/ | 491 | Lbs. Beef | 192 | :94,080 | :0.1805 | 16,981 | :27.04 | :13,277 | :3,704 |
| | Forest Land | 120 | | | | | | | | |
| | | 1,064 | | | | 9.03 | 9,608 | :6.02 | :6,405 | :3,203 |
| | Total | 2,252 | | | | | 55,029 | | :38,869 | :16,160 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 2,268 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big SunflowerReach: Area 4, Zone B-2

State. Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|----------|------|------------|-------|----------|---------|----------|---------|---------|
| Soil : | Land Use and Crop | Acres | | Production | | Value | | Cost | | |
| Unit : | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Return |
| | | | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| All : | Open Land | 2/ | : | 3/ | : | : | : | : | : | : |
| : | Crops | 2,252 | : | : | : | : | : | : | : | : |
| : | Cotton | 2,027 | : | : | : | : | : | : | : | : |
| : | Corn | 204 | : | 566 | : | 4/ | 36,772 | 144.98 | 29,576 | 7,196 |
| : | Soybeans | 225 | : | 31 | : | 1.45 | 10,260 | 30.21 | 6,797 | 3,463 |
| : | Soybeans (Fol.oats) | 319 | : | 26 | : | 2.35 | 19,214 | 33.60 | 10,718 | 8,496 |
| : | Small Grains | (187) | : | 16 | : | 2.35 | 7,113 | 26.22 | 4,903 | 2,210 |
| : | Idle | 281 | : | 35 | : | 0.95 | 9,473 | 24.70 | 6,941 | 2,532 |
| : | Pasture | 40 | : | : | : | 5/ | : | : | : | : |
| : | Other 1/ | 958 | : | 229 | : | 0.1805 | 39,553 | 32.42 | 31,058 | 8,495 |
| : | | 225 | : | : | : | : | : | : | : | : |
| : | Total | 6/ 2,252 | : | : | : | : | 122,385 | : | 89,993 | 32,392 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

2/4/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle):

6/ Total does not include 2,268 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone
 State: Mississippi

SUMMARY - TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|--------------------|-------|------------|----------|-------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | | | | |
| | Crops | | | | |
| | Cotton | | | | |
| | Corn | | | | |
| | Soybeans | | | | |
| | Soybeans(Fol.oats) | | | | |
| | Small Grains | | | | |
| | Idle | | | | |
| | Pasture | | | | |
| | Other <u>1/</u> | | | | |
| | Total <u>2/</u> | 0 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total does not include 530 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4
 State: Mississippi

SUMMARY - TABLE III C
 (Zone of no Project Benefit) 2/
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|----------------------|-------|------|------------|----------|---------------------|---------------------|--------------------|--------------------|---------|
| Soil: | Land Use and Crop | Acres | Unit | Production | Total | Value of Production | Value of Production | Cost of Production | Cost of Production | Net |
| Unit: | Distribution | | | Per Acre | Per Unit | Per Unit | Per Unit | Per Acre | Total | Return |
| | | | | | Dollars | Dollars | Dollars | Dollars | Dollars | Dollars |
| All | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | : | : | : | : | : | : | : | : | : |
| : | Cotton | : | : | : | : | : | : | : | : | : |
| : | Corn | : | : | : | : | : | : | : | : | : |
| : | Soybeans | : | : | : | : | : | : | : | : | : |
| : | Soybeans (Fol. oats) | : | : | : | : | : | : | : | : | : |
| : | Small Grains | : | : | : | : | : | : | : | : | : |
| : | Idle | : | : | : | : | : | : | : | : | : |
| : | Pasture | : | : | : | : | : | : | : | : | : |
| : | Other 1/ | : | : | : | : | : | : | : | : | : |
| : | | : | : | : | : | : | : | : | : | : |
| : | Total | 3/ 0 | : | : | : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Data is same for both "With Project" and "Without Project" conditions; no Table IV C required.
 3/ Total does not include 530 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 4
State: Mississippi

| (1) Soil Unit | (2) Acres | (3) Future Without Project (Production in Dollars) | | (4) Future Without Project (Production in Dollars) | | (5) Future With Project (Production in Dollars) | | (6) Future With Project (Production in Dollars) | | (7) Future With Project (Production in Dollars) | | (8) Future With Project (Production in Dollars) | | (9) Difference in Net Production | |
|---------------------|--------------|--|--------|--|--------|---|--------|---|--------|---|--------|---|--------|---|-----|
| | | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| Zone B-2 and C | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| All | 2,252 | 55,029 | 16,160 | 38,869 | 16,160 | 122,385 | 89,993 | 122,385 | 89,993 | 32,392 | 16,232 | 32,392 | 16,232 | | |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| Total | 1/ 2,252 | 55,029 | 16,160 | 38,869 | 16,160 | 122,385 | 89,993 | 122,385 | 89,993 | 32,392 | 16,232 | 32,392 | 16,232 | | |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |

1/ Total reduced by 2,798 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) | : | (2) | : | (3) | : | (4) | : | (5) |
|----------------------------------|---|--------------|---|------------------|---|-------------------|---|----------------|
| Type of Conversion <u>1/</u> | : | Total amount | : | Cost of clearing | : | Cost of smoothing | : | Total cost |
| | : | <u>Acres</u> | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| <u>Per Acre</u> | : | | : | | : | | : | |
| W to GC | : | xx | : | 55.00 | : | 12.50 | : | 67.50 |
| W to IC | : | xx | : | | : | | : | |
| W to P | : | xx | : | 55.00 | : | 5.00 | : | 60.00 |
| P to GC | : | xx | : | xx | : | 5.00 | : | 5.00 |
| P to IC | : | xx | : | xx | : | | : | |
| GC to IC | : | xx | : | xx | : | xx | : | |
| GC to P | : | xx | : | xx | : | xx | : | |
| Total per acre | : | xx | : | | : | | : | |
| <u>Project</u> | : | | : | | : | | : | |
| W to GC | : | 487 | : | 26,785 | : | 6,088 | : | 32,873 |
| W to IC | : | | : | | : | | : | |
| W to P | : | 472 | : | 25,960 | : | 2,360 | : | 28,320 |
| P to GC | : | 5 | : | xx | : | 25 | : | 25 |
| P to IC | : | | : | xx | : | | : | |
| GC to IC | : | | : | xx | : | xx | : | |
| GC to P | : | | : | xx | : | xx | : | |
| Total project | : | xx | : | | : | | : | 61,218 |
| Annual amortized value <u>2/</u> | : | xx | : | xx | : | xx | : | 3,354 |
| Annual maintenance | : | xx | : | xx | : | xx | : | 0 |
| Total annual cost of conversions | : | xx | : | xx | : | xx | : | 3,354 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

1. The first part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

2. The second part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

3. The third part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

4. The fourth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

5. The fifth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

6. The sixth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

7. The seventh part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

8. The eighth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

9. The ninth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VII

Basin: Yazoo
Project: Big Sunflower
Reach: Area 4, Zone B-2
State: Mississippi

ANALYSIS OF F.A.M. DRAINAGE SYSTEM COSTS

| Soil Mapping unit and land use | Area | Total cost installation | Annual equivalent installation cost | Total main- tenance cost | Total annual cost |
|---------------------------------------|--------------------|-------------------------------|--|-----------------------------------|-------------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1, 1S, 1SU General Crop Pasture | 653 351 | 121.82 36.73 | 1,578 476 | 1,406 85 | 2,984 561 |
| 2S General Crop Pasture | 28 4 | 446 42 | 58 5 | 51 1 | 109 6 |
| 4 and 4S General Crop | 39 | 507 | 66 | 58 | 124 |
| Total | 1,075 | 168.50 | 2,183 | 1,601 | 3,784 |

1/ Does not include 10% other lands.

2/ Includes construction, engineering and contingency.

3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit | : Total | : Zone |
|--|-----------|-----------|-----------|-----------|------------|
| | : Cost | | : Cost | : Cost | : B-2 Cost |
| | | | | | : 46.4% |
| | | | : Dollars | : Dollars | : Dollars |
| Excavation | : Cu.Yd. | : 462,957 | : 0.15 | : 69,444 | : 32,222 |
| Spreading spoil | : Cu. Yd. | : 98,423 | : 0.03 | : 2,953 | : 1,370 |
| Clearing right-of-way | : Ac. | : 105 | : 75.00 | : 7,875 | : 3,654 |
| Right-of-way easements | : Ac. | : 155 | : 99.68 | : 15,450 | : 7,168 |
| Crossings | : Ft. | : 64 | : 40.00 | : 2,560 | : 1,188 |
| Clearing and snagging | : Ac. | : 3 | : 300.00 | : 900 | : 418 |
| | : | : | : | : | : |
| Total construction cost | : xx | : xx | : xx | : 98,282 | : 45,603 |
| | : | : | : | : | : |
| Engineering cost | : xx | : xx | : xx | : 9,828 | : 4,560 |
| Contingencies and legal | : xx | : xx | : xx | : 9,828 | : 4,560 |
| | : | : | : | : | : |
| | | | | | |
| Total installation cost | | | | : 117,938 | : 54,723 |
| | | | | : | : |
| Annual equivalent - installation cost | | | | : | : |
| (amortized for 20 years at 3½%) | | | | : 8,298 | : 3,850 |
| Annual maintenance cost | | | | : 4,914 | : 2,280 |
| | | | | : | : |
| Total annual cost of required group facilities | | | | : 13,212 | : 6,130 |
| | | | | : | : |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 4, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | : | (2) | : | (3) | : | (4) |
|---|---|----------------|---|----------------------|---|-----------------------------------|
| Item | : | Total | : | Discounted Amount | : | Proposed Project, 75% of Total |
| | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| 1. Net return with project | : | 32,392 | : | | : | |
| 2. Net return without project | : | 16,160 | : | <u>1/</u> | : | |
| 3. Gross benefit to project | : | 16,232 | : | 11,366 | : | 8,524 |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 2,183 | : | | : | |
| b. Maintenance cost | : | 1,601 | : | <u>2/</u> | : | |
| c. Total | : | 3,784 | : | 3,000 | : | 2,250 |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 3,850 | : | | : | |
| b. Maintenance cost | : | 2,280 | : | <u>3/</u> | : | |
| c. Total | : | 6,130 | : | 5,641 | : | 4,231 |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 3,354 | : | | : | |
| b. Maintenance cost | : | 0 | : | <u>2/</u> | : | |
| c. Total | : | 3,354 | : | 2,659 | : | 1,994 |
| <hr/> | | | | | | |
| 1/ Discount factor for 15 years @ 5% - (.70023). | | | | | | |
| 2/ Discount factor for 10 years @ 5% - (.79275). | | | | | | |
| 3/ Discount factor for 5 years @ 3 1/2% - (.92028). | | | | | | |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5
 State: Mississippi

TABLE I
Existing Land Use by Soil Mapping Units

Zone B - 1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 5,881 | | 4,931 | | 10,812 |
| 2 | | 622 | | 149 | | 771 |
| 4 | | 39 | | 0 | | 39 |
| 5 | | 49 | | 0 | | 49 |
| 6 | | 979 | | 30 | | 1,018 |
| 9 | | 21 | | 0 | | 21 |
| Subtotal - All Soils | | 7,591 | | 5,119 | | 12,710 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-------|--------|--------|
| 1 | 8,884 | 11,019 | 19,903 |
| 2 | 207 | 107 | 314 |
| 6 | 2,861 | 112 | 2,973 |
| Subtotal - All Soils | | 11,952 | 23,190 |
| 1 | 1,160 | 1,305 | 2,465 |
| 2 | 110 | 0 | 110 |
| 6 | 50 | 0 | 50 |
| Subtotal | | 1,320 | 2,625 |
| Total - Project | | 20,863 | 38,525 |

1. The first part of the paper discusses the importance of maintaining accurate records of all transactions.

2. The second part of the paper discusses the importance of maintaining accurate records of all transactions.

3. The third part of the paper discusses the importance of maintaining accurate records of all transactions.

4. The fourth part of the paper discusses the importance of maintaining accurate records of all transactions.

5. The fifth part of the paper discusses the importance of maintaining accurate records of all transactions.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) : | (2) : | (3) : | (4) : | (5) : | (6) : |
|--------|----------------------|---------|------------|------------|---------|
| Soil : | Land Use and Crop : | Acres : | Production | | |
| Unit : | Distribution : | | Unit : | Per Acre : | Total |
| : | : | 2/ | : | : | : |
| All : | Open Land : | 7,591 | : | : | : |
| : | Crops : | 6,832 | : | : | : |
| : | Cotton : | 1,665 | Lbs.Lint : | 346 | 576,090 |
| : | Corn : | 386 | Bu. : | 19 | 7,334 |
| : | Soybeans : | 2,305 | Bu. : | 15 | 34,575 |
| : | Soybeans(Fol.oats) : | (499) | Bu. : | 10 | 4,990 |
| : | Small Grains : | 684 | Bu. : | 30 | 20,520 |
| : | Rice : | 582 | Cwt. : | 26 | 15,132 |
| : | Idle : | 250 | : | : | : |
| : | Pasture : | 960 | Lbs.Beef : | 168 | 161,280 |
| : | Other 1/ : | 759 | : | : | : |
| : | Forest Land : | 3,999 | : | : | : |
| : | : | : | : | : | : |
| : | Total 3/ : | 11,590 | : | : | : |
| : | : | : | : | : | : |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Total does not include 1,120 acres of dedicated woods.

Mathematics

Chapter 1
Introduction to Mathematics

Chapter 2: The Real Number System

| Section | Topic | Page |
|---------|----------------------------|------|
| 2.1 | Real Numbers | 1 |
| 2.2 | Operations on Real Numbers | 2 |
| 2.3 | Properties of Real Numbers | 3 |
| 2.4 | Ordering of Real Numbers | 4 |
| 2.5 | Interval Notation | 5 |
| 2.6 | Set Theory | 6 |
| 2.7 | Logic | 7 |
| 2.8 | Mathematical Induction | 8 |
| 2.9 | Proof Techniques | 9 |
| 2.10 | Summary | 10 |

Chapter 3: Functions and Graphs

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE III B
(Zone for Drainage and Flood Control Calculations)
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Basin: Yazoo
Project: Big Sunflower
Reach: Area 5, Zone B-1
State: Mississippi

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|--------------------|----------|----------|------------|---------|----------|---------------------|----------|--------------------|---------|
| Soil : | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit : | Distribution | | | Per Acre | | Dollars | Total Dollars | Dollars | Total Dollars | Return |
| All : | Open Land | 2/ | | | | | | | | |
| | Crops | 7,998 | | | | | | | | |
| | Cotton | 7,199 | | | | 3/ | | | | |
| | Corn | 2,098 | Lbs.Lint | 444 | 931,512 | 0.318286 | 296,487 | 121.67 | 255,264 | 41,223 |
| | Soybeans | 457 | Bu. | 22 | 10,054 | 1.45 | 14,578 | 23.94 | 10,941 | 3,637 |
| | Soybeans(Fol.oats) | 1,971 | Bu. | 20 | 39,420 | 2.35 | 92,637 | 29.10 | 57,356 | 35,281 |
| | Small Grains | (741) | Bu. | 14 | 10,374 | 2.35 | 24,379 | 24.63 | 18,251 | 6,128 |
| | Idle | 1,232 | Bu. | 32 | 39,424 | 0.95 | 37,453 | 22.93 | 28,250 | 9,203 |
| | Pasture | 262 | | | | 4/ | | | | |
| | Other l/ | 1,179 | Lbs.Beef | 199 | 234,621 | 0.1805 | 42,349 | 28.31 | 33,377 | 8,972 |
| | Forest Land | 799 | | | | | | | | |
| | | 1,441 | | | | 10.65 | 15,347 | 7.01 | 10,101 | 5,246 |
| | Total | 5/ 9,439 | | | | | 523,230 | | 413,540 | 109,690 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Composite price for lint and seed per pound of lint cotton.
- 4/ Composite value of veal calves and herd culls (beef cattle).
- 5/ Total does not include 3,271 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 5, Zone B-1

State: Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|---------------------|---------|-----------|------------|-----------|----------|---------------------|----------|--------------------|---------|
| Soil | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit | Distribution | | | Per Acre | | Dollars | Dollars | Dollars | Total | Return |
| All: | Open Land | 2/ | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| : | Crops | 9,439 | | | | | | | | |
| : | Cotton | 8,495 | | | | | | | | |
| : | Corn | 3,214 | Lbs. Lint | 522 | 1,677,708 | 0.318286 | 533,991 | 138.76 | 445,975 | 88,016 |
| : | Soybeans | 459 | Bu. | 29 | 13,311 | 1.45 | 19,301 | 28.82 | 13,228 | 6,073 |
| : | Soybeans (Fol.oats) | 1,540 | Bu. | 25 | 38,500 | 2.35 | 90,475 | 33.21 | 51,143 | 39,332 |
| : | Small Grains | (1,263) | Bu. | 17 | 21,471 | 2.35 | 50,457 | 28.26 | 35,692 | 14,765 |
| : | Idle | 1,693 | Bu. | 39 | 66,027 | 0.95 | 62,726 | 26.48 | 44,831 | 17,895 |
| : | Pasture | 170 | | | | 4/ | | | | |
| : | Other 1/ | 1,419 | Lbs. Beef | 243 | 344,817 | 0.1805 | 62,239 | 34.18 | 28,501 | 13,738 |
| : | | 944 | | | | | | | | |
| : | Total | 5/ | | | | | | | | |
| : | | 9,439 | | | | | 819,189 | | 639,370 | 179,819 |

1/ Farmsteads, farm roads, waste: and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Total does not include 12,710 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|----------------------|------------------|------------|----------|---------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | <u>2/</u> | | | |
| All | Open Land | 11,952 | | | |
| | Crops | 10,757 | | | |
| | Cotton | 2,625 | Lbs. Lint | 298 | 782,250 |
| | Corn | 535 | Bu. | 15 | 8,025 |
| | Soybeans | 3,514 | Bu. | 13 | 45,682 |
| | Soybeans (Fol. oats) | (829) | Bu. | 8 | 6,632 |
| | Small Grains | 1,177 | Bu. | 26 | 30,602 |
| | Rice | 879 | Cwt. | 25 | 21,975 |
| | Idle | 458 | | | |
| | Pasture | 1,569 | Lbs. Beef | 145 | 227,505 |
| | Other <u>1/</u> | 1,195 | | | |
| | Forest Land | 8,808 | | | |
| | | | | | |
| | Total | <u>3/</u> 20,760 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Total does not include 2,430 acres of dedicated woodland.



Basin: Yazoo
Project: Big Sunflower
Reach: Area 5, Zone B-2
State: Mississippi

(Zone for Drainage and Flood Control Calculations)

[illegible]

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Total does not include 7,425 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 5, Zone 1-2

State: Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-----------|-------------|------------|----------|------------|---------------------|------------|--------------------|----------|
| Soil : | Land Use and Crop | Acres : | Unit : | Production | Total : | Per Unit : | Value of Production | Per Acre : | Cost of Production | Net |
| Unit : | Distribution | : | : | Per Acre : | Total : | Dollars : | Dollars : | Dollars : | Total : | Return : |
| All : | Open Land | 2/ | : | : | : | : | : | : | : | : |
| : | Crops | 15,765 | : | : | : | : | : | : | : | : |
| : | Cotton | 14,188 | : | : | : | : | : | : | : | : |
| : | Corn | 5,478 | Lbs. Lint : | 501 | 2744,478 | 0.318286 | 873,529 | 132.25 | 724,466 | 149,063 |
| : | Soybeans | 765 | Bu. : | 28 | 21,420 | 1.45 | 31,059 | 28.27 | 21,627 | 9,432 |
| : | Soybeans (Fol.oats) | 2,460 | Bu. : | 23 | 56,580 | 2.35 | 136,963 | 31.94 | 78,572 | 58,391 |
| : | Small Grains | (2,128) | Bu. : | 17 | 36,176 | 2.35 | 85,014 | 28.26 | 60,137 | 24,877 |
| : | Idle | 2,864 | Bu. : | 37 | 105,968 | 0.95 | 100,670 | 25.46 | 72,917 | 27,753 |
| : | Pasture | 284 | : | : | : | 4/ | : | : | : | : |
| : | Other 1/ | 2,334 | Lbs.Beef : | 233 | 543,822 | 0.1805 | 98,160 | 32.95 | 76,905 | 21,255 |
| : | | 1,577 | : | : | : | : | : | : | : | : |
| : | Total | 5/ 15,765 | : | : | : | : | 1,325,395 | : | 1,034,624 | 290,771 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Total does not include 7,425 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5
 State: Mississippi

SUMMARY - TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|----------------------|-------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | | |
| All | Open Land | 1,320 | | | |
| | Crops | 1,188 | | | |
| | Cotton | 128 | Lbs. Lint | 272 | 35,712 |
| | Corn | 59 | Bu. | 14 | 826 |
| | Soybeans | 527 | Bu. | 13 | 6,851 |
| | Soybeans (Fol. oats) | (28) | Bu. | 8 | 224 |
| | Small Grains | 74 | Bu. | 26 | 1,924 |
| | Rice | 105 | Cwt. | 25 | 2,625 |
| | Idle | 111 | | | |
| | Pasture | 184 | Lbs. Beef | 132 | 24,288 |
| | Other 1/ | 132 | | | |
| | Woodland | | | | |
| | | | | | |
| | Total 3/ | 1,320 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Total does not include 1,305 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE III C

Project: Big Sunflower

Reach: Arca 5

State: Mississippi

(1): (2)

(Zone of no Project Benefit) 2/

COMPUTATION OF 'GRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT: (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|--------|---------------------|-------|-----------|------------|--------|---------------|---------|---------------|---------|---------|
| Soil : | Land Use and Crop | Acres | | Production | | of Production | Cost | of Production | Net | |
| Unit : | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | Return |
| | | | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| All : | Open Land | 3/ | | | | | | | | |
| | Crops | 1,320 | | | | | | | | |
| | Cotton | 1,188 | | | | | | | | |
| | Corn | 188 | Lbs. Lint | 317 | 67,680 | 0.318 | 286 | 91.04 | 17,116 | 4,426 |
| | Soybeans | 59 | Bu. | 18 | 1,062 | 1.45 | | 21.54 | 1,271 | 269 |
| | Soybeans (Fol.oats) | 518 | Bu. | 15 | 7,770 | 2.35 | | 21.80 | 11,292 | 6,968 |
| | Small Grains | (28) | Bu. | 10 | 280 | 2.35 | | 17.30 | 484 | 174 |
| | Idle | 74 | Bu. | 27 | 1,998 | 0.95 | | 20.40 | 1,510 | 388 |
| | Pasture | 111 | | | | 5/ | | | | |
| | Other 1/ | 238 | Lbs.Beef | 161 | 38,318 | 0.1805 | | 22.50 | 5,355 | 1,561 |
| | | 132 | | | | | | | | |
| | Total | 6/ | | | | | | | | |
| | | 1,320 | | | | | 50,814 | | 37,028 | 13,786 |

11/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "With Project" and "Without Project" conditions; no Table IV C required.

3/ Parenthetical amounts are duplicated acreages.

14/ Composite price for lint and seed per pound of lint cotton.

5/ Composite value of veal calves and herd culls (beef cattle).

6/ Total does not include 1,305 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5
 State: Mississippi

TABLE V
 PROJECT AREA SUMMARY

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------|--------|---------|---|---------|-----------|--|---------|------------------------------------|
| Soil Unit | Acres | Gross | Future Without Project (Production in Dollars) | Net | Gross | Future With Project (Production in Dollars) | Net | Difference in Net Production |
| Zones B-2 and C | | | | | | | | |
| All Soils | 17,085 | 772,167 | 620,353 | 151,814 | 1,376,209 | 1,071,652 | 304,557 | 152,743 |
| Total 1/ | 17,085 | 772,167 | 620,353 | 151,814 | 1,376,209 | 1,071,652 | 304,557 | 152,743 |

1/ Total area of Zone B-2 and C reduced by 8,730 acres that will remain in woodland.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5, Zone B-2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) Type of Conversion <u>1/</u> | (2) Total amount | (3) Cost of clearing | (4) Cost of smoothing | (5) Total cost |
|--|------------------------|-------------------------------|--------------------------------|----------------------|
| | <u>Acres</u> | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| <u>Per Acre</u> | | | | |
| W to GC | xx | 55.00 | 12.50 | 67.50 |
| W to IC | xx | | | |
| W to P | xx | 55.00 | 5.00 | 60.00 |
| P to GC | xx | xx | | |
| P to IC | xx | xx | | |
| GC to IC | xx | xx | xx | |
| GC to P | xx | xx | xx | |
| Total per acre | xx | | | |
| <u>Project</u> | | | | |
| W to GC | 2,680 | 147,400 | 33,500 | 180,900 |
| W to IC | | | | |
| W to P | 345 | 18,975 | 1,725 | 20,700 |
| P to GC | | xx | | |
| P to IC | | xx | | |
| GC to IC | | xx | xx | |
| GC to P | | xx | xx | |
| Total project | xx | | | 201,600 |
| Annual amortized value <u>2/</u> | xx | xx | xx | 11,044 |
| Annual mainten- ance | xx | xx | xx | 0 |
| Total annual cost of con- versions | xx | xx | xx | 11,044 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VII

ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

Basin: Yazoo
Project: Big Sunflower
Reach: Area 5, Zone B-2
State: Mississippi

| Soil Mapping Unit and Land use | Area | Total cost installation | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|--------------------|-------------------------------|--|------------------------------------|-------------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 5,817 786 | 108,516 8,225 | 14,053 1,065 | 12,521 190 | 26,574 1,255 |
| 2 General Crop Pasture | 107 6 | 1,704 63 | 121 8 | 197 1 | 318 9 |
| 6 General Crop Pasture | 1,084 48 | 14,937 505 | 1,934 65 | 2,298 39 | 4,232 104 |
| Total | 7,848 | 133,951 | 17,246 | 15,246 | 32,492 |

1/ Does not include 10% other lands.

2/ Includes engineering and contingency.

3/ Amortized over 10 years at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit Cost | : Total Cost | : Zone B-2, 65% Cost |
|--|----------|-----------|-------------|--------------|----------------------|
| | | | | | |
| | | | Dollars | Dollars | Dollars |
| Excavation | : Cu.Yd. | : 328,091 | : 0.15 | : 49,214 | : 31,989 |
| Spreading Spoil | : Cu.Yd. | : 206,420 | : 0.03 | : 6,193 | : 4,025 |
| Clearing of right-of-way | : Ac. | : 2.7 | : 75.00 | : 202 | : 131 |
| Right-of-way easements | : Ac. | : 8.4 | : 117.85 | : 990 | : 644 |
| Crossings | : Ft. | : 16 | : 40.00 | : 640 | : 416 |
| Clearing and snagging | : Ac. | : 193 | : 300 | : 57,900 | : 37,635 |
| | | | | | |
| Total construction cost | : xx | : xx | : xx | : 115,139 | : 74,840 |
| | | | | | |
| Engineering cost | : xx | : xx | : xx | : 11,514 | : 7,484 |
| | | | | | |
| Contingencies and legal | : xx | : xx | : xx | : 11,514 | : 7,484 |
| | | | | | |
| | | | | | |
| Total installation cost | | | | : 138,167 | : 89,809 |
| | | | | | |
| Annual equivalent - installation cost (amortized for 20 years at $3\frac{1}{2}\%$) | | | | : 9,721 | : 6,319 |
| Annual maintenance cost | | | | : 5,757 | : 3,742 |
| | | | | | |
| Total annual cost of required facilities | | | | : 15,478 | : 10,061 |
| | | | | | |

Mathematics

Chapter 1: Introduction to Mathematics

| Section | | Topic | | Date | |
|---------|---------|------------------------------------|-----------|-----------|-----------|
| 1.1 | 1.1.1 | Numbers | 1.1.1.1 | 1.1.1.2 | 1.1.1.3 |
| 1.2 | 1.2.1 | Algebra | 1.2.1.1 | 1.2.1.2 | 1.2.1.3 |
| 1.3 | 1.3.1 | Geometry | 1.3.1.1 | 1.3.1.2 | 1.3.1.3 |
| 1.4 | 1.4.1 | Calculus | 1.4.1.1 | 1.4.1.2 | 1.4.1.3 |
| 1.5 | 1.5.1 | Statistics | 1.5.1.1 | 1.5.1.2 | 1.5.1.3 |
| 1.6 | 1.6.1 | Probability | 1.6.1.1 | 1.6.1.2 | 1.6.1.3 |
| 1.7 | 1.7.1 | Trigonometry | 1.7.1.1 | 1.7.1.2 | 1.7.1.3 |
| 1.8 | 1.8.1 | Mathematical Induction | 1.8.1.1 | 1.8.1.2 | 1.8.1.3 |
| 1.9 | 1.9.1 | Set Theory | 1.9.1.1 | 1.9.1.2 | 1.9.1.3 |
| 1.10 | 1.10.1 | Logic | 1.10.1.1 | 1.10.1.2 | 1.10.1.3 |
| 1.11 | 1.11.1 | Combinatorics | 1.11.1.1 | 1.11.1.2 | 1.11.1.3 |
| 1.12 | 1.12.1 | Number Theory | 1.12.1.1 | 1.12.1.2 | 1.12.1.3 |
| 1.13 | 1.13.1 | Topology | 1.13.1.1 | 1.13.1.2 | 1.13.1.3 |
| 1.14 | 1.14.1 | Mathematical Physics | 1.14.1.1 | 1.14.1.2 | 1.14.1.3 |
| 1.15 | 1.15.1 | Mathematical Biology | 1.15.1.1 | 1.15.1.2 | 1.15.1.3 |
| 1.16 | 1.16.1 | Mathematical Economics | 1.16.1.1 | 1.16.1.2 | 1.16.1.3 |
| 1.17 | 1.17.1 | Mathematical Engineering | 1.17.1.1 | 1.17.1.2 | 1.17.1.3 |
| 1.18 | 1.18.1 | Mathematical Medicine | 1.18.1.1 | 1.18.1.2 | 1.18.1.3 |
| 1.19 | 1.19.1 | Mathematical Law | 1.19.1.1 | 1.19.1.2 | 1.19.1.3 |
| 1.20 | 1.20.1 | Mathematical History | 1.20.1.1 | 1.20.1.2 | 1.20.1.3 |
| 1.21 | 1.21.1 | Mathematical Art | 1.21.1.1 | 1.21.1.2 | 1.21.1.3 |
| 1.22 | 1.22.1 | Mathematical Music | 1.22.1.1 | 1.22.1.2 | 1.22.1.3 |
| 1.23 | 1.23.1 | Mathematical Literature | 1.23.1.1 | 1.23.1.2 | 1.23.1.3 |
| 1.24 | 1.24.1 | Mathematical Philosophy | 1.24.1.1 | 1.24.1.2 | 1.24.1.3 |
| 1.25 | 1.25.1 | Mathematical Ethics | 1.25.1.1 | 1.25.1.2 | 1.25.1.3 |
| 1.26 | 1.26.1 | Mathematical Religion | 1.26.1.1 | 1.26.1.2 | 1.26.1.3 |
| 1.27 | 1.27.1 | Mathematical Politics | 1.27.1.1 | 1.27.1.2 | 1.27.1.3 |
| 1.28 | 1.28.1 | Mathematical Social Science | 1.28.1.1 | 1.28.1.2 | 1.28.1.3 |
| 1.29 | 1.29.1 | Mathematical Psychology | 1.29.1.1 | 1.29.1.2 | 1.29.1.3 |
| 1.30 | 1.30.1 | Mathematical Linguistics | 1.30.1.1 | 1.30.1.2 | 1.30.1.3 |
| 1.31 | 1.31.1 | Mathematical Anthropology | 1.31.1.1 | 1.31.1.2 | 1.31.1.3 |
| 1.32 | 1.32.1 | Mathematical Archaeology | 1.32.1.1 | 1.32.1.2 | 1.32.1.3 |
| 1.33 | 1.33.1 | Mathematical Geography | 1.33.1.1 | 1.33.1.2 | 1.33.1.3 |
| 1.34 | 1.34.1 | Mathematical Environmental Science | 1.34.1.1 | 1.34.1.2 | 1.34.1.3 |
| 1.35 | 1.35.1 | Mathematical Agriculture | 1.35.1.1 | 1.35.1.2 | 1.35.1.3 |
| 1.36 | 1.36.1 | Mathematical Forestry | 1.36.1.1 | 1.36.1.2 | 1.36.1.3 |
| 1.37 | 1.37.1 | Mathematical Fisheries | 1.37.1.1 | 1.37.1.2 | 1.37.1.3 |
| 1.38 | 1.38.1 | Mathematical Oceanography | 1.38.1.1 | 1.38.1.2 | 1.38.1.3 |
| 1.39 | 1.39.1 | Mathematical Meteorology | 1.39.1.1 | 1.39.1.2 | 1.39.1.3 |
| 1.40 | 1.40.1 | Mathematical Climatology | 1.40.1.1 | 1.40.1.2 | 1.40.1.3 |
| 1.41 | 1.41.1 | Mathematical Hydrology | 1.41.1.1 | 1.41.1.2 | 1.41.1.3 |
| 1.42 | 1.42.1 | Mathematical Geology | 1.42.1.1 | 1.42.1.2 | 1.42.1.3 |
| 1.43 | 1.43.1 | Mathematical Paleontology | 1.43.1.1 | 1.43.1.2 | 1.43.1.3 |
| 1.44 | 1.44.1 | Mathematical Botany | 1.44.1.1 | 1.44.1.2 | 1.44.1.3 |
| 1.45 | 1.45.1 | Mathematical Zoology | 1.45.1.1 | 1.45.1.2 | 1.45.1.3 |
| 1.46 | 1.46.1 | Mathematical Ecology | 1.46.1.1 | 1.46.1.2 | 1.46.1.3 |
| 1.47 | 1.47.1 | Mathematical Conservation | 1.47.1.1 | 1.47.1.2 | 1.47.1.3 |
| 1.48 | 1.48.1 | Mathematical Management | 1.48.1.1 | 1.48.1.2 | 1.48.1.3 |
| 1.49 | 1.49.1 | Mathematical Planning | 1.49.1.1 | 1.49.1.2 | 1.49.1.3 |
| 1.50 | 1.50.1 | Mathematical Evaluation | 1.50.1.1 | 1.50.1.2 | 1.50.1.3 |
| 1.51 | 1.51.1 | Mathematical Policy | 1.51.1.1 | 1.51.1.2 | 1.51.1.3 |
| 1.52 | 1.52.1 | Mathematical Strategy | 1.52.1.1 | 1.52.1.2 | 1.52.1.3 |
| 1.53 | 1.53.1 | Mathematical Decision Making | 1.53.1.1 | 1.53.1.2 | 1.53.1.3 |
| 1.54 | 1.54.1 | Mathematical Risk Management | 1.54.1.1 | 1.54.1.2 | 1.54.1.3 |
| 1.55 | 1.55.1 | Mathematical Insurance | 1.55.1.1 | 1.55.1.2 | 1.55.1.3 |
| 1.56 | 1.56.1 | Mathematical Finance | 1.56.1.1 | 1.56.1.2 | 1.56.1.3 |
| 1.57 | 1.57.1 | Mathematical Accounting | 1.57.1.1 | 1.57.1.2 | 1.57.1.3 |
| 1.58 | 1.58.1 | Mathematical Taxation | 1.58.1.1 | 1.58.1.2 | 1.58.1.3 |
| 1.59 | 1.59.1 | Mathematical Banking | 1.59.1.1 | 1.59.1.2 | 1.59.1.3 |
| 1.60 | 1.60.1 | Mathematical Investment | 1.60.1.1 | 1.60.1.2 | 1.60.1.3 |
| 1.61 | 1.61.1 | Mathematical Real Estate | 1.61.1.1 | 1.61.1.2 | 1.61.1.3 |
| 1.62 | 1.62.1 | Mathematical Insurance | 1.62.1.1 | 1.62.1.2 | 1.62.1.3 |
| 1.63 | 1.63.1 | Mathematical Finance | 1.63.1.1 | 1.63.1.2 | 1.63.1.3 |
| 1.64 | 1.64.1 | Mathematical Accounting | 1.64.1.1 | 1.64.1.2 | 1.64.1.3 |
| 1.65 | 1.65.1 | Mathematical Taxation | 1.65.1.1 | 1.65.1.2 | 1.65.1.3 |
| 1.66 | 1.66.1 | Mathematical Banking | 1.66.1.1 | 1.66.1.2 | 1.66.1.3 |
| 1.67 | 1.67.1 | Mathematical Investment | 1.67.1.1 | 1.67.1.2 | 1.67.1.3 |
| 1.68 | 1.68.1 | Mathematical Real Estate | 1.68.1.1 | 1.68.1.2 | 1.68.1.3 |
| 1.69 | 1.69.1 | Mathematical Insurance | 1.69.1.1 | 1.69.1.2 | 1.69.1.3 |
| 1.70 | 1.70.1 | Mathematical Finance | 1.70.1.1 | 1.70.1.2 | 1.70.1.3 |
| 1.71 | 1.71.1 | Mathematical Accounting | 1.71.1.1 | 1.71.1.2 | 1.71.1.3 |
| 1.72 | 1.72.1 | Mathematical Taxation | 1.72.1.1 | 1.72.1.2 | 1.72.1.3 |
| 1.73 | 1.73.1 | Mathematical Banking | 1.73.1.1 | 1.73.1.2 | 1.73.1.3 |
| 1.74 | 1.74.1 | Mathematical Investment | 1.74.1.1 | 1.74.1.2 | 1.74.1.3 |
| 1.75 | 1.75.1 | Mathematical Real Estate | 1.75.1.1 | 1.75.1.2 | 1.75.1.3 |
| 1.76 | 1.76.1 | Mathematical Insurance | 1.76.1.1 | 1.76.1.2 | 1.76.1.3 |
| 1.77 | 1.77.1 | Mathematical Finance | 1.77.1.1 | 1.77.1.2 | 1.77.1.3 |
| 1.78 | 1.78.1 | Mathematical Accounting | 1.78.1.1 | 1.78.1.2 | 1.78.1.3 |
| 1.79 | 1.79.1 | Mathematical Taxation | 1.79.1.1 | 1.79.1.2 | 1.79.1.3 |
| 1.80 | 1.80.1 | Mathematical Banking | 1.80.1.1 | 1.80.1.2 | 1.80.1.3 |
| 1.81 | 1.81.1 | Mathematical Investment | 1.81.1.1 | 1.81.1.2 | 1.81.1.3 |
| 1.82 | 1.82.1 | Mathematical Real Estate | 1.82.1.1 | 1.82.1.2 | 1.82.1.3 |
| 1.83 | 1.83.1 | Mathematical Insurance | 1.83.1.1 | 1.83.1.2 | 1.83.1.3 |
| 1.84 | 1.84.1 | Mathematical Finance | 1.84.1.1 | 1.84.1.2 | 1.84.1.3 |
| 1.85 | 1.85.1 | Mathematical Accounting | 1.85.1.1 | 1.85.1.2 | 1.85.1.3 |
| 1.86 | 1.86.1 | Mathematical Taxation | 1.86.1.1 | 1.86.1.2 | 1.86.1.3 |
| 1.87 | 1.87.1 | Mathematical Banking | 1.87.1.1 | 1.87.1.2 | 1.87.1.3 |
| 1.88 | 1.88.1 | Mathematical Investment | 1.88.1.1 | 1.88.1.2 | 1.88.1.3 |
| 1.89 | 1.89.1 | Mathematical Real Estate | 1.89.1.1 | 1.89.1.2 | 1.89.1.3 |
| 1.90 | 1.90.1 | Mathematical Insurance | 1.90.1.1 | 1.90.1.2 | 1.90.1.3 |
| 1.91 | 1.91.1 | Mathematical Finance | 1.91.1.1 | 1.91.1.2 | 1.91.1.3 |
| 1.92 | 1.92.1 | Mathematical Accounting | 1.92.1.1 | 1.92.1.2 | 1.92.1.3 |
| 1.93 | 1.93.1 | Mathematical Taxation | 1.93.1.1 | 1.93.1.2 | 1.93.1.3 |
| 1.94 | 1.94.1 | Mathematical Banking | 1.94.1.1 | 1.94.1.2 | 1.94.1.3 |
| 1.95 | 1.95.1 | Mathematical Investment | 1.95.1.1 | 1.95.1.2 | 1.95.1.3 |
| 1.96 | 1.96.1 | Mathematical Real Estate | 1.96.1.1 | 1.96.1.2 | 1.96.1.3 |
| 1.97 | 1.97.1 | Mathematical Insurance | 1.97.1.1 | 1.97.1.2 | 1.97.1.3 |
| 1.98 | 1.98.1 | Mathematical Finance | 1.98.1.1 | 1.98.1.2 | 1.98.1.3 |
| 1.99 | 1.99.1 | Mathematical Accounting | 1.99.1.1 | 1.99.1.2 | 1.99.1.3 |
| 1.100 | 1.100.1 | Mathematical Taxation | 1.100.1.1 | 1.100.1.2 | 1.100.1.3 |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 5
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | : | (2) | : | (3) | : | (4) |
|---|---|---------|---|------------|---|-------------------|
| Item | : | Total | : | Discounted | : | Proposed Project, |
| | : | Dollars | : | Amount | : | 65% of Total |
| | : | Dollars | : | Dollars | : | Dollars |
| 1. Net return with project | : | 304,557 | : | | : | |
| 2. Net return without project | : | 151,814 | : | <u>1/</u> | : | |
| 3. Gross benefit to project | : | 152,743 | : | 94,895 | : | 61,682 |
| | : | | : | | : | |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 17,246 | : | | : | |
| b. Maintenance cost | : | 15,246 | : | <u>2/</u> | : | |
| c. Total | : | 32,492 | : | 22,752 | : | 14,789 |
| | : | | : | | : | |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 6,319 | : | | : | |
| b. Maintenance cost | : | 3,742 | : | <u>3/</u> | : | |
| c. Total | : | 10,061 | : | 8,354 | : | 5,430 |
| | : | | : | | : | |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 11,044 | : | | : | |
| b. Maintenance cost | : | 0 | : | <u>2/</u> | : | |
| c. Total | : | 11,044 | : | 7,733 | : | 5,026 |
| | : | | : | | : | |
| <hr/> | | | | | | |
| 1/ Discount factor for 20 years @ 5% - (.62127). | | | | | | |
| 2/ Discount factor for 15 years @ 5% - (.70023). | | | | | | |
| 3/ Discount factor for 10 years @ 3½% - (.83033). | | | | | | |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6
 State: Mississippi

TABLE I
Existing Land Use By Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Wooded (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|----------------|---|---------------|
| 1 | | 5,367 | | 5,219 | | 10,586 |
| 6 | | 426 | | 46 | | 472 |
| 6S | | 19 | | 0 | | 192 |
| Subtotal - All Soils | | 5,985 | | 5,265 | | 11,250 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-------|-------|--------|
| 1 | 4,562 | 8,264 | 12,826 |
| 1S | 203 | 681 | 884 |
| 6 | 51 | 0 | 51 |
| 6S | 91 | 10 | 101 |
| 14 | 0 | 138 | 138 |
| Subtotal - All Soils | 4,907 | 9,093 | 14,000 |

Zone C - Zone of no Project Benefit

| | | | |
|----------|----|-----|-----|
| 1 | 20 | 300 | 320 |
| 6 | | 100 | 100 |
| Subtotal | 20 | 400 | 420 |

| | | | |
|-----------------|--------|--------|--------|
| Total - Project | 10,912 | 14,758 | 25,670 |
|-----------------|--------|--------|--------|

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|----------------------|--------|------------|----------|---------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | | |
| All | Open Land | 5,985 | | | |
| | Crops | 5,386 | | | |
| | Cotton | 622 | Lbs. Lint | 302 | 187,844 |
| | Corn | 200 | Bu. | 21 | 4,200 |
| | Soybeans | 2,791 | Bu. | 12 | 33,492 |
| | Soybeans (fol. oats) | (200) | Bu. | 8 | 1,600 |
| | Small Grains | 595 | Bu. | 26 | 15,470 |
| | Rice | 483 | Cwt. | 25 | 12,075 |
| | Idle | 157 | | | |
| | Pasture | 538 | Lbs. Beef | 144 | 77,472 |
| | Other 1/ | 599 | | | |
| | Forest Land | 5,265 | | | |
| | | | | | |
| | Total | 11,250 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|---------|----------|---------------------|----------|--------------------|--------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | Per Acre | Dollars | Dollars | Dollars | Dollars | Dollars | Return |
| : | : | 2/ | : | : | : | : | : | : | : | : |
| All : | Open Land | : | : | : | : | : | : | : | : | : |
| : | Crops | 6,773 | : | : | : | : | : | : | : | : |
| : | Cotton | 6,096 | : | : | : | : | : | : | : | : |
| : | Corn | 1,164 | Lbs.Lint | 382 | 444,648 | 0.318286 | 141,525 | 107.69 | 125,351 | 16,174 |
| : | Soybeans | 222 | Bu. | 22 | 4,884 | 1.45 | 7,082 | 24.05 | 5,339 | 1,743 |
| : | Soybeans (Fcl.Oats) | 2,703 | Bu. | 18 | 48,654 | 2.35 | 114,337 | 27.30 | 73,792 | 40,545 |
| : | Small Grains | (222) | Bu. | 13 | 2,886 | 2.35 | 6,782 | 22.81 | 5,064 | 1,718 |
| : | Idle | 667 | Bu. | 29 | 19,343 | 0.95 | 18,376 | 21.43 | 14,294 | 4,082 |
| : | Pasture | 177 | : | : | : | : | : | : | : | : |
| : | Other 1/ | 1,163 | Lbs.Beef | 178 | 207,014 | 0.1805 | 37,366 | 25.11 | 29,203 | 8,163 |
| : | Forest Land | 677 | : | : | : | : | : | : | : | : |
| : | | 2,238 | : | : | : | 9.49 | 21,239 | 5.93 | 13,271 | 7,968 |
| : | | 5/ | : | : | : | : | : | : | : | : |
| : | Total | 9,011 | : | : | : | : | 346,707 | : | 266,314 | 80,393 |
| : | | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Composite price for lint and seed per pound of lint cotton.
- 4/ Composite value of veal calves and herd culls (beef cattle).
- 5/ Total does not include 2,239 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 6, Zone B-1

State: Mississippi.

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

[illegible]

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|--------------------|--------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | | |
| All | Open Land | 4,907 | | | |
| | Crops | 4,417 | | | |
| | Cotton | 330 | Lbs. Lint: | 293 | 96,690 |
| | Corn | 142 | Bu. | 14 | 1,988 |
| | Soybeans | 2,492 | Bu. | 12 | 29,904 |
| | Soybeans(Fol.oats) | 147 | Bu. | 8 | 1,176 |
| | Small Grains | 465 | Bu. | 26 | 12,090 |
| | Rice | 411 | Bu. | 25 | 10,275 |
| | Idle | 131 | | | |
| | Pasture | 446 | Lbs.Beef | 138 | 61,548 |
| | Other 1/ | 490 | | | |
| | Forest Land | 9,231 | | | |
| | | | | | |
| | Total | 14,000 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 6, Zone B-2

State: Mississippi

SUMMARY - TABLE III B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|-----------|------------|---------|----------|---------------------|----------|--------------------|---------|
| Soil: | Land use and crop | Acres | | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | Unit | Per Acre | Total | Dollars | Dollars | Dollars | Total | Return |
| | | 2/ | | | | | | | | Dollars |
| All : | Open Land | | | | | | | | | |
| : | Crops | 5,801 | | | | | | | | |
| : | Cotton | 5,221 | | | | | | | | |
| : | Corn | 797 | Lbs. Lint | 375 | 298,875 | 0.318286 | 95,128 | 106.02 | 84,498 | 10,630 |
| : | Soybeans | 166 | Bu. | 20 | 3,320 | 1.45 | 4,814 | 22.75 | 3,776 | 1,038 |
| : | Soybeans (F&L Oats) | 2,534 | Bu. | 19 | 48,146 | 2.35 | 113,143 | 28.21 | 71,484 | 41,659 |
| : | Small Grains | (165) | Bu. | 13 | 2,145 | 2.35 | 5,041 | 22.82 | 3,765 | 1,276 |
| : | Idle | 534 | Bu. | 29 | 15,486 | 0.95 | 14,712 | 21.43 | 11,444 | 3,268 |
| : | Pasture | 155 | | | | | | | | |
| : | Other 1/ | 1,035 | Lbs. Beef | 174 | 180,090 | 0.1805 | 32,506 | 24.49 | 25,347 | 7,159 |
| : | Forest Land | 580 | | | | | | | | |
| : | | 4,030 | | | | | | | | |
| : | | 5/ | | | | | | | | |
| : | Total | 9,831 | | | | | 303,589 | | 224,212 | 79,377 |
| : | | | | | | | | | | |
| : | | | | | | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Total does not include 4,169 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Yazoo

Big Sunflower

Area 6, Zone B-2

Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------|---------------------|----------|------|------------|----------|----------|---------------|----------|------------|---------|
| Soil | Land Use and Crop | Acres | | Production | | Value | of Production | Cost | Production | Net |
| Unit | Distribution | | Unit | Per Acre | Total | Per Unit | Total | Per Acre | Total | return |
| | | | | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| All | Open Land | 2/ | | | | | | | | |
| | Crops | 9,831 | | | | | | | | |
| | Cotton | 8,847 | | | | | | | | |
| | Corn | 2,667 | | 460 | 1227,740 | 0.318286 | 390,772 | 124.58 | 332,504 | 58,268 |
| | Soybeans | 276 | | 25 | 6,900 | 1.45 | 10,005 | 26.51 | 7,317 | 2,688 |
| | Soybeans (Fol.oats) | 2,197 | | 23 | 50,531 | 2.35 | 119,688 | 31.96 | 70,216 | 49,472 |
| | Small Grains | (1,327) | | 15 | 19,905 | 2.35 | 46,777 | 25.55 | 33,905 | 12,872 |
| | Idle | 1,769 | | 35 | 61,915 | 0.95 | 58,819 | 24.46 | 43,270 | 15,549 |
| | Pasture | 177 | | | | 4/ | | | | |
| | Other 1/ | 1,759 | | 220 | 386,980 | 0.1805 | 69,850 | 31.36 | 55,162 | 14,688 |
| | | 984 | | | | | | | | |
| | Total | 5/ 9,831 | | | | | 695,911 | | 542,374 | 153,537 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/2 Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton..

14/ Composite value of veal calves and herd culls (beef cattle)

5/ Total does not include 4,169 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone C
 State: Mississippi

SUMMARY -- TABLE II C (Zone of no Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|--------------------|-------|------------|----------|-------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | 20 | | | |
| | Crops | 18 | | | |
| | Cotton | | Lbs. Lint | | |
| | Corn | | Bu. | | |
| | Soybeans | | Bu. | | |
| | Soybeans(Fol.oats) | | Bu. | | |
| | Small Grains | | Bu. | | |
| | Idle | | | | |
| | Pasture | 18 | Lbs. Beef | 132 | 2,376 |
| | Other 1/ | 2 | | | |
| | Total 2/ | 20 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total does not include 400 acres of land that will remain in woods.

1. The first part of the paper discusses the importance of the study of the history of the United States.

2. The second part of the paper discusses the importance of the study of the history of the United States.

3. The third part of the paper discusses the importance of the study of the history of the United States.

4. The fourth part of the paper discusses the importance of the study of the history of the United States.

5. The fifth part of the paper discusses the importance of the study of the history of the United States.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone C
 State: Mississippi

SUMMARY - TABLE III C
 (Zone of no Project Benefit) 2/
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|-------|----------------------|---------------------|----------|--------------------|--------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | Per Acre | | Dollars | Dollars | Dollars | Dollars | Return |
| All | Open Land | 20 | | | | | | | | |
| : | Crops | 18 | | | | | | | | |
| : | Cotton | | | | | | | | | |
| : | Corn | | | | | | | | | |
| : | Soybeans | | | | | | | | | |
| : | Soybeans (Fol.Oats) | | | | | | | | | |
| : | Small Grains | | | | | | | | | |
| : | Idle | | | | | | | | | |
| : | Pasture | 18 | Lbs.Beef | 161 | 2,898 | 0.1805 ^{3/} | 523 | 22.50 | 405 | 118 |
| : | Other 1/ | 2 | | | | | | | | |
| : | | 4/ | | | | | | | | |
| : | Total | 20 | | | | | 523 | | 405 | 118 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Data is same for both "With Project" and "Without Project" conditions; no Table IV C required.
 3/ Composite value of veal calves and herd culls (beef cattle).
 4/ Total does not include 400 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 6
State: Mississippi

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|----------------|-------|---|---------|--------|--|---------|---------|------------------------------------|
| Soil Unit | Acres | Future Without Project (Production in Dollars) | | Net | Future With Project (Production in Dollars) | | Net | Difference in Net Production |
| | | Gross | Cost | | Gross | Cost | | |
| Zones B-2 and: | | | | | | | | |
| C | | | | | | | | |
| All | 9,851 | 304,112 | 224,617 | 79,495 | 696,434 | 542,779 | 153,655 | 74,160 |
| Total 1/ | 9,851 | 304,112 | 224,617 | 79,495 | 696,434 | 542,779 | 153,655 | 74,160 |

1/ Total area reduced by 4,569 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone B-2
 State: Mississippi

TABLE VI
LAND CONVERSIONS WITH PROJECT

| (1) | (2) | (3) | (4) | (5) |
|----------------------------------|--------------|------------------|-------------------|----------------|
| Type of Conversion <u>1/</u> | Total amount | Cost of Clearing | Cost of Smoothing | Total cost |
| | <u>Acres</u> | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| Per Acre | | | | |
| W to GC | xx | 55 | 12.50 | 67.50 |
| W to IC | xx | | | |
| W to P | xx | 55 | 5.00 | 60.00 |
| P to GC | xx | xx | | |
| P to IC | xx | xx | | |
| GC to IC | xx | xx | xx | |
| GC to P | xx | xx | xx | |
| Total per acre | xx | | | |
| Project | | | | |
| W to GC | 2,902 | 159,610 | 36,275 | 195,885 |
| W to IC | 0 | | | |
| W to P | 724 | 39,820 | 3,620 | 43,440 |
| P to GC | | xx | | |
| P to IC | | xx | | |
| GC to IC | | xx | xx | |
| GC to P | | xx | xx | |
| Total project | xx | | | 239,325 |
| Annual amortized value <u>2/</u> | xx | xx | xx | 13,110 |
| Annual maintenance | xx | xx | xx | 0 |
| Total annual cost of conversions | xx | xx | xx | 13,110 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent. (.05478).

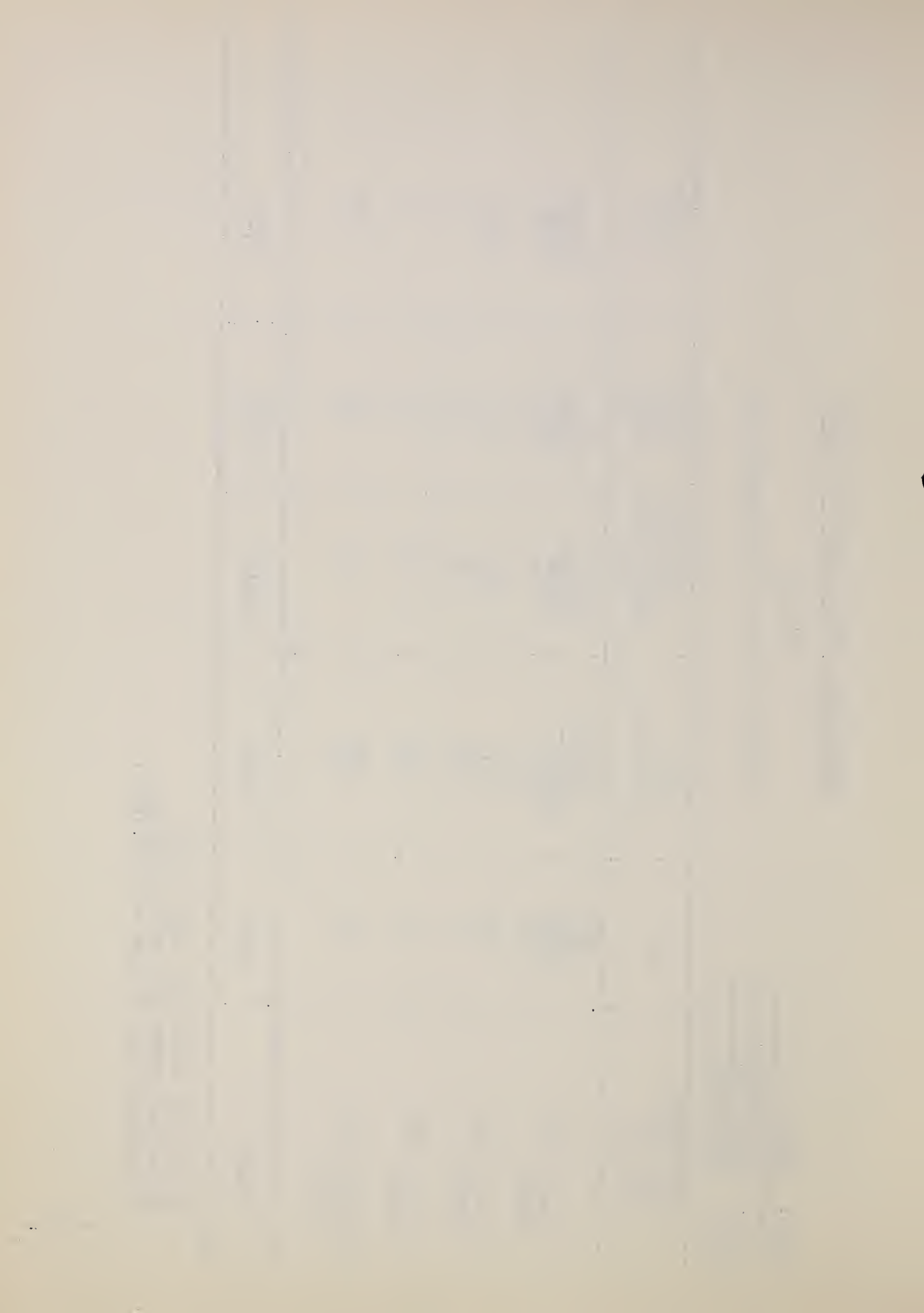
MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, B-2
 State: Mississippi

TABLE VII
 ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

| Soil Mapping unit and land use | Area | Total Cost installation | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|--------------------|-------------------------------|--|------------------------------------|-------------------------|
| | <u>1/</u> Acres | <u>2/</u> Dollars | <u>3/</u> Dollars | Dollars | Dollars |
| 1 General Crop Pasture | 3,552 578 | 662,62 6,049 | 8,581 783 | 7,646 140 | 16,227 923 |
| 1S General Crop Pasture | 252 41 | 4,701 429 | 609 56 | 542 10 | 1,151 66 |
| 6 General Crop Pasture | 17 1 | 234 11 | 30 1 | 36 1 | 66 2 |
| 6S General Crop Pasture | 37 1 | 509 234 | 66 1 | 78 1 | 144 2 |
| Total | 4,479 | 78,429 | 10,127 | 8,454 | 18,581 |

- 1/ Does not include 10% other lands.
 2/ Includes engineering and contingency.
 3/ Amortized over 10 years at 5% (0.12950).



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUT DRAINAGE NEEDS AND COSTS

| Item | : Unit | : Amount | : Unit | : Total | : Cost |
|--|------------|----------|-----------|-----------|-----------|
| | : : | : : | : Ccost | : Cost | : Zone |
| | : : | : : | : : | : : | : B-2,55% |
| | : : | : : | : Dollars | : Dollars | : Dollars |
| Excavation | : Cu. Yd.: | 151,151 | : 0.15 | : 22,673 | : 12,470 |
| Spreading Spoil | : Cu. Yd.: | 71,871 | : 0.03 | : 2,156 | : 1,186 |
| Clearing right-of-way | : Ac. : | 40 | : 75 | : 3,000 | : 1,650 |
| Right-of-way easements | : Ac. : | 122 | : 116.80 | : 14,250 | : 7,838 |
| Crossings | : Ft. : | 40.00 | : 21 | : 840 | : 462 |
| Clearing and Snagging | : Ac. : | 110 | : 300 | : 33,000 | : 18,150 |
| | : : | : : | : : | : : | : : |
| Total construction cost | : xx | : xx | : xx | : 75,919 | : 41,755 |
| | : : | : : | : : | : : | : : |
| Engineering cost | : xx | : xx | : xx | : 7,592 | : 4,176 |
| Contingencies and legal | : xx | : xx | : xx | : 7,592 | : 4,176 |
| | : : | : : | : : | : : | : : |
| | : : | : : | : : | : : | : : |
| Total installation cost | | | | : 91,103 | : 50,107 |
| | | | | : : | : : |
| Annual equivalent - installation cost (amortized for 20 years at 3½%) | | | | : 6,410 | : 3,526 |
| Annual maintenance cost | | | | : 3,796 | : 2,088 |
| | | | | : : | : : |
| Total annual cost of required group facilities | | | | : 10,206 | : 5,614 |
| | | | | : : | : : |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 6, Zone B-2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

| (1) | (2) | (3) | (4) |
|-------------------------------|----------------|-------------------|--------------------------------|
| Item | Total | Discounted Amount | Proposed Project, 80% of Total |
| | <u>Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| 1. Net return with project | 153,655 | | |
| 2. Net return without project | 79,495 | <u>1/</u> | |
| 3. Gross benefit to project | 74,160 | 46,073 | 36,858 |
| 4. Farm drainage cost | | | |
| a. Installation cost | 10,127 | | |
| b. Maintenance cost | 8,454 | <u>2/</u> | |
| c. Total | 18,581 | 13,011 | 10,409 |
| 5. Group drainage cost | | | |
| a. Installation cost | 3,526 | | |
| b. Maintenance cost | 2,088 | <u>3/</u> | |
| c. Total | 5,614 | 4,661 | 3,729 |
| 6. Conversion cost | | | |
| a. Installation cost | 13,110 | <u>2/</u> | |
| b. Maintenance | 0 | | |
| c. Total | 13,110 | 9,180 | 7,344 |

1/ Discount factor for 20 years @ 5% - (.62127).

2/ Discount factor for 15 years @ 5% - (.70023).

3/ Discount factor for 10 years @ 3½% - (.83033).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7
 State: Mississippi

TABLE I
 Existing Land Use by Soil Mapping Units

Zone B-1 - Drainage and Flood Control Calculations

| Soil Mapping Unit | : | Open (Acres) | : | Woodland (Acres) | : | Total (Acres) |
|----------------------|---|--------------|---|------------------|---|---------------|
| 1S | | 210 | | 59 | | 269 |
| 1U | | 335 | | 276 | | 611 |
| 2 | | 15 | | 0 | | 15 |
| 14 | | 0 | | 185 | | 185 |
| Subtotal - All Soils | | 560 | | 520 | | 1,080 |

Zone B-2 - Drainage and Flood Control Calculations

| | | | |
|----------------------|-----|-----|-------|
| 1S | 526 | 192 | 718 |
| 1U | 80 | 240 | 320 |
| 14 | | 252 | 252 |
| Subtotal - All Soils | 606 | 684 | 1,290 |

Zone C - Zone of no Project Benefit

| | | | |
|-----------------|-------|-------|-------|
| 1S | 240 | 210 | 450 |
| 1U | | 50 | 50 |
| 14 | | 652 | 652 |
| Subtotal | 240 | 912 | 1,152 |
| Total - Project | 1,406 | 2,116 | 3,522 |

[illegible]

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-1
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS)

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|----------------------|-------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | | |
| All | Open Land | 560 | | | |
| | Crops | 503 | | | |
| | Cotton | 17 | Lbs. Lint | 337 | 5,729 |
| | Corn | 26 | Bu. | 16 | 416 |
| | Soybeans | 109 | Bu. | 15 | 1,635 |
| | Soybeans (Fol. oats) | (10) | Bu. | 9 | 90 |
| | Small Grains | 66 | Bu. | 27 | 1,782 |
| | Idle | 35 | | | |
| | Pasture | 250 | Lbs. Beef | 147 | 36,750 |
| | Other 1/ | 57 | | | |
| | Forest Land | 520 | | | |
| | | | | | |
| | Total | 1,080 | | | |
| | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-1
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|--------|----------|---------------------|----------|--------------------|--------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of production | Per Acre | Cost of production | Net |
| Unit: | distribution | | | Per Acre | Total | Dollars | Dollars | Dollars | Total | Return |
| : | : | : | : | : | : | : | : | : | : | : |
| : | : | 2/ | : | : | : | : | : | : | : | : |
| All : | Open Land | 610 | : | : | : | : | : | : | : | : |
| : | Crops | 548 | : | : | : | : | : | : | : | : |
| : | Cotton | 29 | Lbs.Lint | 425 | 12,325 | 0.318286 | 3,923 | 116.71 | 3,385 | 538 |
| : | Corn | 29 | Bu. | 22 | 638 | 1.45 | 925 | 23.86 | 692 | 233 |
| : | Soybeans | 108 | Bu. | 23 | 2,484 | 2.35 | 5,837 | 31.23 | 3,373 | 2,464 |
| : | Soybeans (Fcl.Oats) | (11) | Bu. | 15 | 165 | 2.35 | 388 | 24.83 | 273 | 115 |
| : | Small Grains | 72 | Bu. | 30 | 2,160 | 0.95 | 2,052 | 21.93 | 1,579 | 473 |
| : | Idle | 39 | : | : | : | 4/ | : | : | : | : |
| : | Pasture | 271 | Lbs.Beef | 191 | 51,761 | 0.1805 | 9,343 | 27.10 | 7,344 | 1,999 |
| : | Other 1/ | 62 | : | : | : | : | : | : | : | : |
| : | Forest Land | 143 | : | : | : | 9.03 | 1,291 | 6.02 | 861 | 430 |
| : | Total | 753 | : | : | : | : | : | : | : | : |
| : | : | 5/ | : | : | : | : | : | : | : | : |
| : | : | 753 | : | : | : | : | 23,759 | : | 17,507 | 6,252 |
| : | : | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Composite price for lint and seed per pound of lint cotton.
- 4/ Composite value of veal calves and herd culls (beef cattle).
- 5/ Total does not include 327 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Big Sunflower

Reach: Area 7, Zone B-1

State: Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|--------|------------------------|---------------------|----------|--------------------|---------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of production | Per Acre | Cost of production | Net |
| Unit: | distribution | | | :Per Acre: | | :Dollars | :Dollars | :Dollars | Total | Return |
| | | 2/ | | | | | | | | Dollars |
| All | Open Land | | | | | | | | | |
| | Crops | 753 | | | | | | | | |
| | Cotton | 678 | | | | | | | | |
| | Corn | 124 | Lbs.Lint | 490 | 60,760 | 0.318286 ^{3/} | 19,339 | 131.19 | 16,268 | 3,071 |
| | Soybeans | 35 | Bu. | 28 | 980 | 1.45 | 1,421 | 28.28 | 990 | 431 |
| | Soybeans (Fcl.Oats) | 135 | Bu. | 26 | 3,510 | 2.35 | 8,249 | 34.14 | 4,609 | 3,640 |
| | Small Grains | (67) | Bu. | 17 | 1,139 | 2.35 | 2,677 | 27.61 | 1,850 | 827 |
| | Idle | 102 | Bu. | 37 | 3,774 | 0.95 | 3,585 | 25.46 | 2,597 | 988 |
| | Pasture | 13 | | | | | | | | |
| | Other 1/ | 269 | Lbs.Beef | 227 | 61,063 | 0.1805 ^{4/} | 11,022 | 32.21 | 8,664 | 2,358 |
| | | 75 | | | | | | | | |
| | | 5/ | | | | | | | | |
| | Total | 753 | | | | | 46,293 | | 34,978 | 11,315 |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Composite price for lint and seed per pound of lint cotton.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Total does not include 327 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-2
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION : EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| | | 2/ | | | |
| All | Open Land | 606 | | | |
| | Crops | 545 | | | |
| | Cotton | - | Lbs. Lint | | |
| | Corn | 28 | Bu. | 16 | 448 |
| | Soybeans | 109 | Bu. | 18 | 1,962 |
| | Soybeans (Fol.oats) | (10) | Bu. | 11 | 110 |
| | Small Grains | 82 | Bu. | 29 | 2,378 |
| | Idle | 54 | | | |
| | Pasture | 272 | Lbs. Beef | 155 | 42,160 |
| | Other 1/ | 61 | | | |
| | Forest Land | 684 | | | |
| | Total | 1,290 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-2
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|-----------|------------|--------|------------------------|---------------------|----------|--------------------|--------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | distribution | | | Per Acre | Total | Dollars | Dollars | Dollars | Total | Return |
| | | 2/ | | | | | | | | |
| All | Open Land | | | | | | | | | |
| | Crops | 649 | | | | | | | | |
| | Cotton | 585 | | | | | | | | |
| | Corn | 12 | Lbs. Lint | 477 | 5,724 | 0.318286 ^{3/} | 1,822 | 127.43 | 1,529 | 293 |
| | Soybeans | 30 | Bu. | 24 | 720 | 1.45 | 1,044 | 24.96 | 749 | 295 |
| | Soybeans (Fcl.Oats) | 105 | Bu. | 28 | 2,940 | 2.35 | 6,909 | 34.42 | 3,614 | 3,295 |
| | Small Grains | (12) | Bu. | 18 | 216 | 2.35 | 508 | 27.52 | 330 | 178 |
| | Idle | 88 | Bu. | 33 | 2,904 | 0.95 | 2,759 | 23.44 | 2,063 | 696 |
| | Pasture | 58 | | | | | | | | |
| | Other 1/ | 292 | Lbs. Beef | 210 | 61,320 | 0.1805 ^{4/} | 11,068 | 30.00 | 8,760 | 2,308 |
| | Forest Land | 64 | | | | | | | | |
| | | 194 | | | | 9.03 | 1,752 | 6.02 | 1,168 | 584 |
| | | 5/ | | | | | | | | |
| | Total | 843 | | | | | 25,862 | | 18,213 | 7,649 |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Composite price for lint and seed per pound of lint cotton.
- 4/ Composite value of veal calves and herd culls (beef cattle).
- 5/ Total does not include 447 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|--------|----------|---------------------|----------|--------------------|---------|
| Soil: | Land Use and Crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Net |
| Unit: | Distribution | | | :Per Acre: | | :Dollars | :Dollars | :Dollars | Total | :Return |
| : | : | 2/ | : | : | : | : | : | : | : | : |
| : | : | : | : | : | : | : | : | : | : | : |
| All: | Open Land | 843 | : | : | : | : | : | : | : | : |
| : | Crops | 759 | : | : | : | : | : | : | : | : |
| : | Cotton | 99 | Lbs.Lint | 521 | 51,579 | 0.318286 | 16,417 | 137.62 | 13,624 | 2,793 |
| : | Corn | 39 | Bu. | 31 | 1,209 | 1.45 | 1,753 | 29.94 | 1,168 | 585 |
| : | Soybeans | 114 | Bu. | 30 | 3,420 | 2.35 | 8,037 | 36.70 | 4,184 | 3,853 |
| : | Soybeans (Fol.Oats) | (76) | Bu. | 20 | 1,520 | 2.35 | 3,572 | 30.33 | 2,305 | 1,267 |
| : | Small Grains | 113 | Bu. | 38 | 4,294 | 0.95 | 4,079 | 25.97 | 2,935 | 1,144 |
| : | Idle | 15 | : | : | : | 4/ | : | : | : | : |
| : | Pasture | 379 | Lbs.Beef | 239 | 90,581 | 0.1805 | 16,350 | 33.68 | 12,765 | 3,585 |
| : | Other 1/ | 84 | : | : | : | : | : | : | : | : |
| : | : | 5/ | : | : | : | : | : | : | : | : |
| : | Total | 843 | : | : | : | : | 50,208 | : | 36,981 | 13,227 |
| : | : | : | : | : | : | : | : | : | : | : |

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Composite price for lint and seed per pound of lint cotton.
 4/ Composite value of veal calves and herd culls (beef cattle).
 5/ Total does not include 447 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7
 State: Mississippi

SUMMARY - TABLE II C
 (Zone of no Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

| (1) | (2) | (3) | (4) | (5) | (6) |
|------|---------------------|-------|------------|----------|--------|
| Soil | Land Use and Crop | Acres | Production | | |
| Unit | Distribution | | Unit | Per Acre | Total |
| All | Open Land | 240 | | | |
| | Crops | 216 | | | |
| | Cotton | | | | |
| | Corn | | | | |
| | Soybeans | | | | |
| | Soybeans (Fol.oats) | | | | |
| | Small Grains | | | | |
| | Idle | 22 | | | |
| | Pasture | 194 | Lbs. Beef | 154 | 29,876 |
| | Other <u>1/</u> | 24 | | | |
| | Forest Land | 0 | | | |
| | Total <u>2/</u> | 240 | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total does not include 912 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 7, Zone C
State: Mississippi

SUMMARY - TABLE III C

(Zone of no Project Benefit) 2/

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

| (1): | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|-------|---------------------|-------|----------|------------|--------|----------------------|---------------------|----------|--------------------|---------|
| Soil: | Land use and crop | Acres | Unit | Production | Total | Per Unit | Value of Production | Per Acre | Cost of Production | Return |
| Unit: | distribution | | | Per Acre | Total | Dollars | Dollars | Dollars | Dollars | Dollars |
| : | : | : | : | : | : | : | : | : | : | : |
| : | : | : | : | : | : | : | : | : | : | : |
| all | Open Land | | | | | | | | | |
| : | Crops | 240 | | | | | | | | |
| : | Cotton | 216 | | | | | | | | |
| : | Corn | | | | | | | | | |
| : | Soybeans | | | | | | | | | |
| : | Soybeans (Fcl.Oats) | | | | | | | | | |
| : | Small Grains | | | | | | | | | |
| : | Idle | 22 | | | | | | | | |
| : | Pasture | 194 | Lbs.Beef | 214 | 41,516 | 0.1805 ^{3/} | 7,494 | 30.54 | 5,925 | 1,569 |
| : | Other 1/ | 24 | | | | | | | | |
| : | Forest Land | 0 | | | | | | | | |
| : | | | | | | | | | | |
| : | | 4/ | | | | | | | | |
| : | Total | 240 | | | | | 7,494 | | 5,925 | 1,569 |
| : | | | | | | | | | | |
| : | | | | | | | | | | |

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "With project" and "Without Project" conditions; no Table IV C required.

3/ Composite value of veal calves and herd culls (beef cattle).

4/ Total does not include 912 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABl V
PROJECT AREA SUMMARY

Basin: Yazoo
Project: Big Sunflower
Reach: Area 7
State: Mississippi

| (1) Soil Unit | (2) Acres | (3) Future Without Project (Production in Dollars) | | (4) Future Without Project (Production in Dollars) | | (5) Future With Project (Production in Dollars) | | (6) Future With Project (Production in Dollars) | | (7) Future With Project (Production in Dollars) | | (8) Future With Project (Production in Dollars) | | (9) Difference in Net Production | |
|---------------------|--------------|--|-------|--|--------|---|--------|---|-----|---|-----|---|-----|---|-----|
| | | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| Zones B-2 and C | | | | | | | | | | | | | | | |
| All | 1,083 | 33,356 | 9,218 | 24,138 | 57,702 | 42,906 | 14,796 | | | | | | | 5,578 | |
| Total | 1,083 | 33,356 | 9,218 | 24,138 | 57,702 | 42,906 | 14,796 | | | | | | | 5,578 | |

1/ Total reduced by 1,359 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7, Zone B-2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

| (1) | : | (2) | : | (3) | : | (4) | : | (5) |
|----------------------------------|---|--------------|---|------------------|---|-------------------|---|----------------|
| Type of Conversion <u>1/</u> | : | Total amount | : | Cost of clearing | : | Cost of smoothing | : | Total cost |
| | : | <u>Acres</u> | : | <u>Dollars</u> | : | <u>Dollars</u> | : | <u>Dollars</u> |
| Per Acre | : | | : | | : | | : | |
| W to GC | : | xx | : | 55.00 | : | 12.50 | : | 67.50 |
| W to IC | : | | : | | : | | : | |
| W to P | : | xx | : | 55.00 | : | 5.00 | : | 60.00 |
| P to GC | : | xx | : | xx | : | | : | |
| P to IC | : | xx | : | xx | : | | : | |
| GC to IC | : | xx | : | xx | : | xx | : | |
| GC to P | : | xx | : | xx | : | xx | : | |
| Total per acre | : | xx | : | | : | | : | |
| Project | : | | : | | : | | : | |
| W to GC | : | 87 | : | 4,785 | : | 1,088 | : | 5,873 |
| W to IC | : | 0 | : | | : | | : | |
| W to P | : | 87 | : | 4,785 | : | 435 | : | 5,220 |
| P to GC | : | | : | xx | : | | : | |
| P to IC | : | | : | xx | : | | : | |
| GC to IC | : | | : | xx | : | xx | : | |
| GC to P | : | | : | xx | : | xx | : | |
| Total Project | : | xx | : | 9,570 | : | 1,523 | : | 11,093 |
| Annual amortized value <u>2/</u> | : | xx | : | xx | : | xx | : | 608 |
| Annual maintenance | : | xx | : | xx | : | xx | : | 0 |
| Total annual cost of conversions | : | xx | : | xx | : | xx | : | 608 |

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops,(rice); P--pasture.

2/ Amortized over 50-year period at 5 percent (.05478).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VII
ANALYSIS OF FARM DAMAGE SYSTEM COSTS

Basin: Yazoo
Project: Big Sunflower
Reach: Area 7, Zone B-2
State: Mississippi

| Soil Mapping unit and land use | Area | Total Cost installation | Annual equivalent installation cost | Annual main- tenance cost | Total annual cost |
|--------------------------------------|---------------------|-------------------------------|--|------------------------------------|-------------------------|
| | <u>1/ Acres</u> | <u>2/ Dollars</u> | <u>3/ Dollars</u> | <u>Dollars</u> | <u>Dollars</u> |
| 1S General Crop Pasture | 130 130 | 2,426 1,360 | 314 176 | 280 31 | 594 207 |
| 1U General Crop Pasture | 53 52 | 989 545 | 128 70 | 114 13 | 242 83 |
| Total | 365 | 5,320 | 688 | 438 | 1,126 |

- 1/ Does not include 10% other lands.
2/ Includes engineering and contingency.
3/ Amortized over 10 year period at 5% (.12950).

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

| Item | Unit | Amount | Unit Cost | Total Cost | Cost Zone B-2 54% |
|--|--------|---------|-----------|------------|-------------------|
| | | | Dollars | Dollars | Dollars |
| Excavation | Cu.Ft. | 162,496 | .15 | 24,374 | 13,162 |
| Spreading Spoil | Cu.Ft. | 11,484 | .03 | 345 | 186 |
| Clearing right-of-way | Ac. | | | | |
| Right-of-way easements | Ac. | | | | |
| Crossings | Ft. | | | | |
| Clearing and Snagging | Ac. | 35 | 300 | 5,250 | 2,835 |
| Total construction cost | xx | xx | xx | 29,969 | 16,183 |
| Engineering cost | xx | xx | xx | 2,997 | 1,618 |
| Contingencies and legal | xx | xx | xx | 2,997 | 1,618 |
| Total installation cost | | | | 35,963 | 19,420 |
| Annual equivalent - installation cost (amortized for 20 years at 3½%) | | | | 2,530 | 1,366 |
| Annual maintenance cost | | | | 1,498 | 809 |
| Total annual cost of required group facilities | | | | 4,028 | 2,175 |

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Big Sunflower
 Reach: Area 7
 State: Mississippi

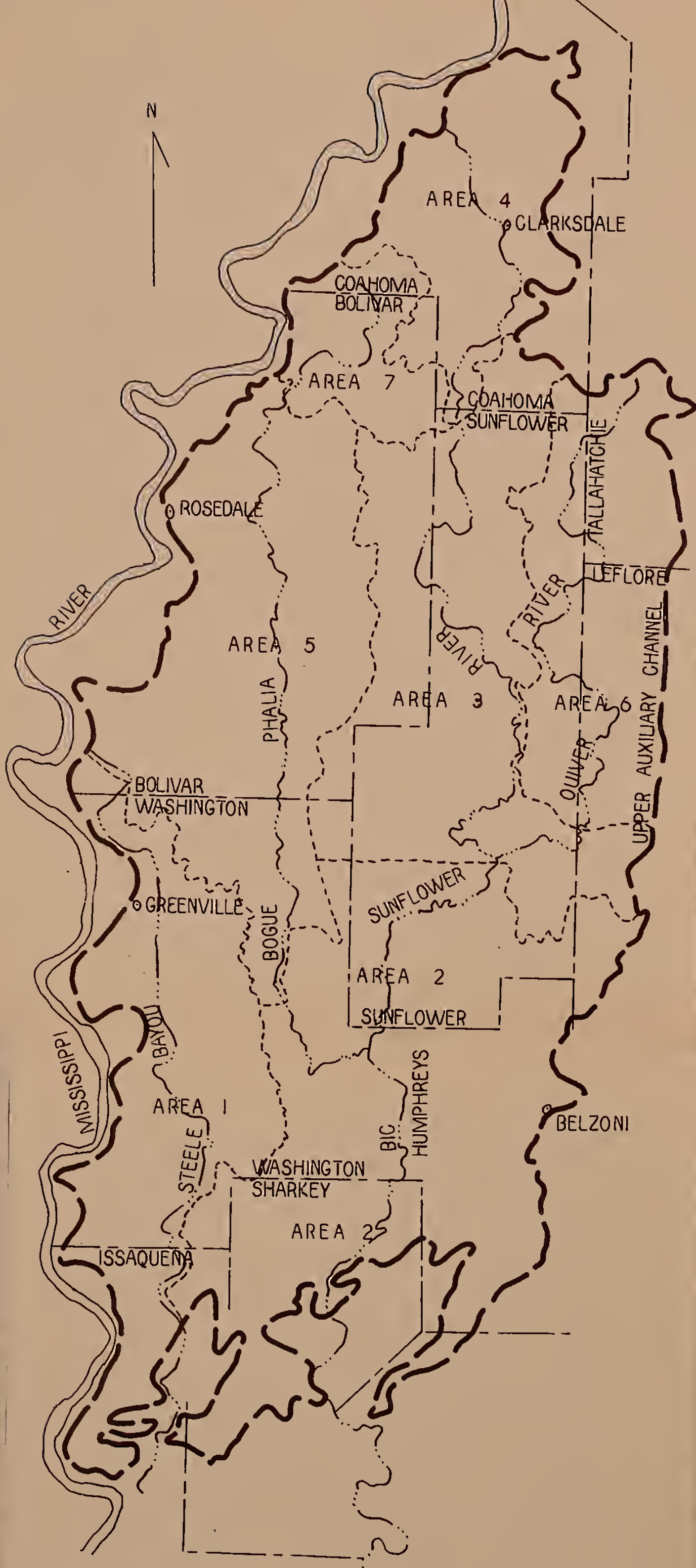
TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND
 ASSOCIATED COSTS

| (1) Item | : | (2) Total | : | (3) Discounted amount | : | (4) Proposed project (75% of total) |
|-------------------------------|---|----------------|---|-----------------------------|---|---|
| | | <u>Dollars</u> | | <u>Dollars</u> | | <u>Dollars</u> |
| 1. Net return with project | : | 14,769 | : | | : | |
| 2. Net return without project | : | 9,218 | : | <u>1/</u> | : | |
| 3. Gross benefit to project | : | 5,551 | : | 3,887 | : | 2,915 |
| | : | | : | | : | |
| 4. Farm drainage cost | : | | : | | : | |
| a. Installation cost | : | 688 | : | | : | |
| b. Maintenance cost | : | 438 | : | <u>2/</u> | : | |
| c. Total | : | 1,126 | : | 893 | : | 670 |
| | : | | : | | : | |
| 5. Group drainage cost | : | | : | | : | |
| a. Installation cost | : | 1,366 | : | | : | |
| b. Maintenance cost | : | 809 | : | <u>3/</u> | : | |
| c. Total | : | 2,175 | : | 2,002 | : | 1,502 |
| | : | | : | | : | |
| 6. Conversion cost | : | | : | | : | |
| a. Installation cost | : | 608 | : | | : | |
| b. Maintenance cost | : | 0 | : | <u>2/</u> | : | |
| c. Total | : | 608 | : | 482 | : | 362 |
| | : | | : | | : | |


1/ Discount factor for 15 years @ 5% (.70023).


2/ Discount factor for 10 years @ 5% (.79275).


3/ Discount factor for 5 years @ 3½% (.92038).




LEGEND:

PROJECT BOUNDARY 

AREA BOUNDARY 

RIVERS, STREAMS 

COUNTY LINE 

LOCATION MAP

BIG SUNFLOWER PROJECT

MISSISSIPPI

SCALE 1 : 500,000

